A STUDY OF ASSOCIATION OF THYROID DISORDERS IN PATIENTS WITH ABNORMAL UTERINE BLEEDING

A Dissertation Submitted to

THE TAMILNADU DR. M.G.R MEDICAL UNIVERSITY

CHENNAI

In Partial Fulfillment of the Regulations

For the Award of the Degree of

M.D. (Obstetrics and Gynaecology) - BRANCH – II

GOVERNMENT KILPAUK MEDICAL COLLEGE

CHENNAI

April - 2013

CERTIFICATE

This is to certify that this dissertation titled **"A STUDY OF ASSOCIATION OF THYROID DISORDERS IN PATIENTS WITH ABNORMAL UTERINE BLEEDING "** has been prepared by **Dr. G. LAKSHMI,** under my supervision in the Department of Obstetrics and Gynaecology, Government Kilpauk Medical College , Chennai , during the academic period 2010 – 2013 and is being submitted to the Tamilnadu Dr. M.G.R. Medical University, Chennai in the partial fulfilment of the University regulation for the award of the M.D (O & G) and her dissertation is a bonafide work.

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DECLARATION

I **Dr. G. LAKSHMI** solemnly declare that this dissertation **"A STUDY OF ASSOCIATION OF THYROID DISORDERS IN PATIENTS WITH ABNORMAL UTERINE BLEEDING"** was prepared by me at Government Kilpauk Medical College and Hospital, Chennai, under the guidance and supervision of **Prof. Dr. A. KALA, M.D., D.G.O.,** Head of the Department of Obstetrics and Gynaecology, Govt. Kilpauk Medical College and Hospital, Chennai.

This dissertation is submitted to **The Tamil Nadu Dr. M.G.R. Medical University, Chennai** in partial fulfillment of the University regulations for the award of the degree of **M.D. Branch II (Obstetrics and Gynaecology).**

Place : Chennai
Date : **(Dr. G. LAKSHMI)**

ACKNOWLEDGEMENT

I am greatly indebted to Dr. Ramakrishnan MD.,DLO., Dean, Kilpauk Medical College and general Hospital, Chennai who initiated this interdisciplinary work with generous permission.

It is my great pleasure, deep respect, gratitude and indebtedness to Professor Dr. A. Kala MD., DGO., Head of the Department of Obstetrics and Gynaecology for her remarkable guidance, encouragement and selfless support which enabled me to pursue the work with perseverance and a skillful mind to view and analyze things that appear small to bring forth scientific outcome. Her contagious enthusiasm was a source of energy to me in successfully completing my dissertation under her generous guidance.

I record my sincere and heartfelt thanks to all my professors Dr. G. Geetha MD., DGO., Dr. T.K. Shaanthy Gunasingh MD., DGO., Dr. V. Sumathi MD., DGO., Dr. S. Shoba MD., DGO., Dr. P.S. Jikki Kalaiselvi MD., DGO., for their untiring support and enduring encouragement throughout the study.

I express gratitude and sincere thanks to my co -guide Dr. Amudha MD., for her encouraging words and valuable advice that helped me to complete my study.

I wish to express my sincere thanks to all my assistant professors who all have supported, clarified and provided the needed information throughout the study with concern.

My heartfelt thanks to Mr. Padmanaban, for his efficient handling of the analysis of the results with much patience and concern.

Last but not least, I sincerely thank my family members for their continuous encouragement, patience, valuable support and sincere prayers without which I could not have completed this work successfully.

I express my deep concern from the bottom of the heart to my friend Dr.Latha who stood behind me to bring out this work completely.

Finally I would like to thank all my patients who participated in this study without them this dissertation would not be a reality.

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Submission time	25-Dec-2012 09:08PM
Total words	9818

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CONTENTS

ABBREVATIONS

AUB	-	ABNORMAL UTERINE BLEEDING
AACE	-	AMERICAN ASSOCIATION OF CLINICAL ENDOCRINOLOGISTS
ATA	-	AMERICAN THYROID ASSOCIATION
BMI	-	BODY MASS INDEX
BMR	-	BASAL METABOLIC RATE
DUB	-	DYSFUNCTIONAL UTERINE BLEEDING
FSH	-	FOLLICLE STIMULATING HORMONE
GnRH	-	GONADOTROPHIN RELEASING HORMONE
HPE	-	HISTOPATHOLOGICAL EXAMINATION
LH	-	LUETINISING HORMONE
PBI	-	PROTEIN BOUND IODINE
Tbg	-	THYROID BINDING GLOBULIN
TSH	-	THYROID STIMULATING HORMONE
T3	-	TRIIODOTHYRONINE
T4	-	THYROXINE
SHBG	-	SEX HORMONE BINDING GLOBULIN

INTRODUCTION

INTRODUCTION

It has been long recognized that thyroid dysfunction may have profound effects on the female reproductive system. A relationship between the thyroid gland and the gonads is suggested by far more frequent occurrence of thyroid disorders in women than in men by clinical appearance of goitre during pregnancy, puberty and menopause. Thyroid disorders are 10 times more common in women than in men [47]. Currently subclinical thyroid dysfunction is on the rising side than overt dysfunction.

The effect of thyroid hormones is due to the direct metabolic effects on the gonads as well as indirectly through alterations in anterior pituitary hormones that control the sexual functions.[9]

Regular menstruation is a feature of contemporary society. Large family size, prolonged breast feeding and reduced life expectancy limited the number of cycles experienced by women in the past. Currently women may experience more than 400 menstruations between menarche and menopause.

One of the common causes of women attending gynecology OPD is abnormal uterine bleeding constituting around 30 percentages. Majority of

women who present with bleeding problems, no underlying abnormality could be made out. It is quite often this situation tackled with fractional curettage and finally hysterectomy.

AUB encompasses a wide spectrum of disorders such as reproductive tract diseases, systemic diseases and iatrogenic causes. Thyroid dysfunction accounts for 30% - 40% of cases in systemic disorders causing AUB.

The goal of evaluation of AUB is to arrive at an accurate and clinically useful diagnosis in the most efficient and cost effective manner possible. Thyroid function test is helpful in women presenting with AUB to detect subclinical conditions and provide an opportunity to treat the cause. This will avoid unnecessary hormonal treatment, surgery and reduce patient morbidity.

AIM OF THE STUDY

AIM OF THE STUDY

1. To determine the association between menstrual irregularities and thyroid dysfunction.

2. To analyze the pattern of menstrual dysfunction among women with thyroid disorder.

3. To estimate the prevalence of subclinical thyroid diseases among women in the reproductive age group with abnormal uterine bleeding.

4. To establish if screening for thyroid abnormalities is justified using T_3,T_4,TSH.

REVIEW OF LITERATURE

REVIEW OF LITERATURE

ABNORMAL UTERINE BLEEDING [58]

Any bleeding from the genital tract which is a deviation from the normal in frequency , cyclicity and quantity.

The average duration of menstrual cycle is 28 days (21 – 35 days), duration of bleeding varies from (2-8 days) and mean menstrual blood loss is about 30 – 40 ml.

TYPES OF AUB [58]

1. Menorrhagia – Cyclical bleeding at normal and regular intervals, excessive in amount (More than 80ml) and duration (more than 5 days)or both.

2. Polymenorrhoea – Cyclical bleeding at frequent intervals (less than 21 days), normal in amount.

3. Hypomenorrhoea – Menstrual bleeding scanty on amount (less than 2 days)

4. Oligomenorrhoea – Menstrual bleeding more than 35 days and remains constant at that frequency.

5. Amenorrhoea – Absence of periods in a total of atleast three of previous three cycle intervals or months.

6. Metorrhagia – irregular cyclical bleeding.

7. Polymenorrhagia – cyclical bleeding which is both excessive and frequency.

DYSFUNCTIONAL UTERINE BLEEDING (DUB)

Abnormal uterine bleeding for which no organic cause can be found.

This is a diagnosis of exclusion.

CAUSES OF AUB IN REPRODUCTIVE AGE [58]

Pregnancy and related conditions:

- Ectopic pregnancy
- Abortions
- Trophoblastic diseases

Medications and Iatrogenic Causes:

- Anticoagulants
- Corticosteroids
- Antipsychotics

- Oral contraceptive pills (progestin only pills)
- Selective Serotonin Receptor Inhibitors

Systemic disorders:

- Adrenal hyperplasia and cushing's diseases.
- Blood dyscrasias
- Coagulopathies
- Hepatic disorder
- Thyroid disorder

Genital Tract Pathology

(a) Infections

- Cervicitis, Myometritis, Endometritis
- Tuberculosis
- Salpingitis

(b) Benign Conditions

- Adenomyosis

(c) Malignant Conditions

- Cervical cell carcinoma
- Endometroid adenocarcinoma

- Leiomyosarcoma
- Testosterone producing ovarian tumours

(d) Trauma to genital tract

(e) Foreign body adhesions and lacerations.

A brief outline of physiology of menstruation and thyroid function is essential for better understanding of abnormal uterine bleeding caused by thyroid dysfunction.

PHYSIOLOGY OF MENSTRUATION AND OVULATION:[47]

- Hypothalamo – pituitary – ovarian axis must be actively coordinated, endometrium respond to ovarian hormones and the outlet tract must be patent for the menstruation to occur.
- An estrogen dominated preovulatory phase known as follicular (or) proliferative phase.
- A progesterone dominated and postovulatory phase known as luteal phase (or) secretory phase.
- Menstrual phase following progesterone withdrawal due to corpus luteum demise.

Follicular phase of menstrual cycle lasts for 10- 16 days. Luteal phase which is always constant lasts for 14 days. Estrogen responsible for proliferative changes and endometrium exposure to progesterone leads to secretory phase.

Follicular phase :

It starts with menstruation and ends by ovulation, characterized by development of ovarian follicles. During last few days of the menstrual cycle, decline in steroid production by corpus luteum leads to elevated FSH levels and this stimulates follicle development. Aromatase enzyme in granulosa cells converts androgen to estrogen activated by FSH, leads to increased estrogen level and increase in the number of granulosa cells noted ,as growth of the follicle. FSH stimulation also leads to LH receptor formation on granulosa cells which secretes small quantity of progesterone which exerts positive feedback on estrogen primed pituitary to augment LH release. LH stimulates androstenedione production in theca cells, aromatization of androgen to estrone and then to estrodiol by 17β hydroxysteroid dehydrogenase Type I. This is known as regulation of two cell two gonadotrophin hypothesis.

FSH recruit cohort of follicles from a pool of non-proliferating follicles on day 1-4 of menstrual cycle. Selection of one follicle occurs on

5-7th day while other follicles undergo progressive atresia. By 8th day the selected follicle exerts dominance hence termed as dominant follicle, which later undergo maturation to form the Graffian follicle.

FSH levels are elevated during early follicular phase and then begin to decline until ovulation. LH levels begins to increase by mid follicular phase. LH surge occurs due to positive feedback mechanism of increasing estrogen which triggers the ovulation process.

OVULATION

It occurs about 10 – 12 hours after a peak in LH levels and LH surge occurs 24 – 36 hours prior to ovulation, which stimulates luteinization of granulosa cells and there by synthesis of progesterone. It also stimulates resumption of meiosis. The amount of prostaglandins and proteolytic enzymes begins to rise after an increase in progesterone and LH levels.

The Graffian follicle begins to enlarge at a rate of 1-2mm/day and attains a maximum size of about 20mm at ovulation time. The activated proteolytic enzymes and prostaglandin leads to an explosive release of oocyte-cumulus complex from the follicle by digesting the collagen in the follicular wall and stimulates smooth muscle within the ovary to a certain

extent. After ovulation there is sudden shrinkage of follicular wall and free fluid in the pouch of Douglas.

Luteal Phase (Secretory Phase)

Granulosa cells increase in size continuously after ovulation. Luetinized granulosa cells with theca interna cells constitute the corpus luteum.

Main function of the corpus luteum is to prepare the estrogen primed endometrium for implantation. It is a temporary endocrine organ.

Secretory phase is categorized into

Early secretory phase is regulated by both estrogen and progesterone.

Mid Secretory phase is regulated by progesterone.

Late secretory phase is mainly due to withdrawal of progesterone.

Corpus luteal cells starts to proliferate and becomes vascularised under the influence of angiogenic factors secreted by granulosa and theca cells. The function of corpus luteum begins to decrease about 9-11 days after ovulation. Corpus luteum undergoes luteolysis and forms a scar tissue

known as corpus albicans in the absence of pregnancy. Corpus luteum demise leads to decrease in LH levels and surge in the estrogen and PGF2.

MENSTRUAL PHASE

Corpus luteum degeneration leads to decrease in estrogen and progesterone levels. Physiological withdrawal of progesterone gives rise to molecular and cellular interactions, finally resulting in menstrual bleeding. Progesterone withdrawal initiates synthesis of prostaglandins and COX-2 resulting in elevation of PGE2 and PGF2. Myometrial contractions and vasoconstriction due to PGF2 thereby produces sloughing of degraded endometrial tissue.

Estrogen stimulates regeneration of surface endometrial epithelium within 2 days after menstuation. Prolonged vasoconstriction due to estrogen secreted by the growing follicle, enables formation of clot over the denuded endometrial vessels.

THYROID GLAND

Thyroid gland first described by Galen maintains tissue metabolism at the optimum level for normal function. It originates embryologically from an evagination of the pharyngeal epithelium with contributions from the lateral pharyngeal pouches. The thyroid is one of the largest endocrine organs weighing approximately about 25 grams. The thyroid is well vascularised with an estimated blood flow ranging from 4-6ml/min/gram,

one of the highest flow rates in the body. Two lobes each 2.0 to 2.5cm in thickness and 4.0cm in length joined by isthmus constitute the thyroid.

Synthesis of Thyroid hormones[(51)]

Synthesis of thyroid hormones depends on the entry of iodine into the thyroid, normal iodine metabolism and synthesis of receptor protein for iodine namely thyroglobulin. Inorganic iodide from the diet is actively transported into the thyroid cell and follicular lumen. Oxidation of iodide, effected by peroxidase, facilitates iodination of tyrosyl residues in thyroglobulin resulting in the formation of inactive precursors monoiodotyrosine (MIT) and diiodotyrosine (DIT).Iodothyronines(T_3 and T_4) are formed by a coupling reaction of iodotyrosines occuring within thyroglobulin molecule and by oxidative condensation through peroxidase. Follicular colloid is pincytosed at the apical margin of the cells and fuses with thyroid lysosomes in which thyroglobulin is hydrolyzed by proteases and free thyroid hormones are released into the circulation.

Thyroid Hormone turnover[(51)]

Normal T_4 production rate is around100nmol/day. 80% of T_3 and the entire r T_3 are produced by metabolism of T_4. Once released into the blood, T_4 is bound to thyroid binding globulin (TBG), thyroid binding prealbumin and albumin. TBG is the major binding protein and only 0.03 percent of

circulating T_4 is free. T_3 is bound 10 to 20 times less firmly by TBG than T_4. Consequently, the proportion of free T_3 (0.3percent) is 8 to 10 times greater than that of T_4. T_3 possesses high affinity for receptors in the tissues and hence, has a metabolic potency 3 to 5 times that of T_4. Due to its relatively weak binding, T_3 has a rapid onset and offset of action.

Metabolism of thyroid hormones[(51)]

Following penetration into the cell, the iodothyronines undergo one of three metabolic transformations – deiodination ,conjugation and outside chain modifications.

1. Deiodination is the most important route of metabolism and proceeds by sequential removal of single iodine atoms ultimately yielding the thyronine nucleus stripped of iodine. 70% of T_4 and T_3 disposal occurs, chiefly in the liver and kidneys through deiodination .

One third of the circulating T_4 is converted to T_3 and 45 percent is converted to r T_3. T_3 is produced by the removal of an iodine atom at the 5' position of T_4 by the action of 5' – deiodinase. Three isoenzymes have been identified containing selenocysteine in the active centre.

Type I deiodinase present in the liver, kidney and thyroid effects the majority of T_4 to T_3 conversation and also converts r T_3 to

3,3’ - diodothyronine. Enzyme activity is increased in hyperthyroidism and decreased in hypothyroidism. A sulfhydryl containing cytosolic cofactor, possibly glutathione is required for deiodination. Type-1 deiodianase is inactive during fetal life and systemic illness.

Type 2 deiodinase (D_2) is localized in the pituitary, central nervous system, placenta and brown fat. D_2 activity increases in hypothyroidism allowing to maintain intracellular T_3 concentrations in the brain and pituitary and physiological suppression of TSH release by T_4 is dependent on D_2 activity.

Type 3 deiodinase present in the placenta protects the foetus from maternal T_3 and T_4. Inner ring deiodination of T_4 by D_3 is the most important source of circulating r T_3.

2. Conjugation in the liver with glucuronate and sulfate accounts for 20% of T_4 and T_3 disposal with the conjugates secreted into the bile.

3. Side chain modification by oxidative deamination and decarboxylation of the alanine side chain to yield tetraiodo and triiodothyroacetic acid accounts for 5 percent of daily disposal of thyroid hormones,

REGULATION OF THYROID FUNCTION[53]

Thyroid function is regulated by suprathyroidal and intrathyroidal mechanisms. Suprathyroid control is exerted through the hypothalamic – pituitary thyroid axis. Thyroid stimulating hormone (TSH) secreted by the anterior pituitary binds to receptors on the follicular cells of the thyroid, activating adenylate cyclase and increasing cellular cyclic AMP leading to synthesis and secretion of thyroid hormones.

TSH secretion is regulated by two opposing influences on the pituitary thyrotrophs. Thyrotropin releasing hormone (TRH), a tripeptide produced by the hypothalamus, stimulates TSH secretion while thyroid hormones both inhibit the TSH secretion directly by reduced expression of subunit genes and antagonize the action of TRH by reducing TRH production and the number of TRH receptors on the pituitary thyrotrophs.

The principal arbiter of thyroid hormone action in pituitary is T_3 derived from plasma as well as generated locally from intrapituitary T_4 by type 2 deiodinase.

Intrathyroid regulation is responsible for modifying the response to TSH by influencing production of cyclic AMP. This auto regulatory mechanism is based on changes in glandular organic iodine content.

THYROID HORMONE INFLUENCE ON REPRODUCTIVE SYSTEM FETUS AND THE NEONATE:[9]

Fetal thyroid gland begins to synthesis thyroid hormones between 8 – 10 weeks of gestation. No defects in the reproductive system in human studies are notified in neonatal Grave's diseases. Sexual maturation occurs earlier in animal studies in disease of thyroid excess.

Small ovaries present in fetal hypothyroidism which are deficient in lipid and cholesterol are seen in animal studies. No effects are found in the reproductive system in human studies especially in hypothyroidism. Hypothyroidism and hyperthyroidism show no changes in fetal and neonatal period, even through animal studies show significant changes.

PREPUBERTAL[44]

Sexual maturation is delayed when thyrotoxicosis occurs before puberty. In Mccune Albright syndrome coincidental association of thyrotoxicosis, sexual precocity is noted with polystotic fibrous dysplasia.

Juvenile hypothyroidism is mainly characterized by delay in onset of puberty and followed by anovulatory cycles. Primary hypothyroidism causes precocious sexual development and galactorrhoea. Paradoxically due to “spill over” of increased TSH which stimulates LH receptor, myxedematous infiltration of ovary may play a role (33).

ADULT WOMEN

Hypothyroidism[42]

1. Association with ovarian hyper stimulation syndrome especially in hypothyroidism.

2. Severe hypothyroidism is associated with diminished libido and failure of ovulation.

3. Menorrhagia occurs due to anovulation. Inadequate progesterone secretion and endometrial proliferation continues, due to estrogen resulting in irregular break through bleeding.

4. Rarely, ovarian atrophy and amenorrhoea occurs in primary hypothyroidism due to secondary depression of pituitary function.

5. T_4 has been found to enhance the action of gonadotrophins in leutinization and progestin secretion.

6. Granulosa cells also contains TSH receptors.

Hyperthyroidism[42]

1. Raised levels of LH, FSH and estrogen.

2. Midcycle LH peak reduced or absent but gonatrophin response to GnRH is increased.

3. SHBG increases leads to decrease in clearance of testosterone and estradiol.

4. Peripheral aromatization of androgen to estrogen occurs due to alleviation of peripheral blood flow.

5. Disruption occurs in amplitude and frequency of LH/FSH pulses due to thyroid hormones influencing GnRH signal

PREGNANCY[49]

There is a slight increase in the thyroid size due to increased circulating estrogen, and associated increase in the secretion of thyroid binding globulin levels due to elevated level of HCG, which has the inherent property of thyroid stimulating effects.

Transient decrease in the TSH levels in early pregnancy found after that within normal range and remain same or increase until parturition. Free T_3 decreases throughout pregnancy. Free T_4 remains constant but may increase in early pregnancy and then decrease slightly below normal levels than in non- pregnant controls.

In choriocarcinoma and hydatidiform mole, the placenta and trophoblastic tissue secretes substances with TSH activity which is responsible for the thyrotoxicosis.

CLINICAL SYMPTOMS AND SIGNS OF THYROID DISORDER

HYPOTHYROIDISM

SYMPTOMS	**SIGNS**
1. Cold intolerance	Bradycardia
2. Weight gain	Hypertension
3. Constipation	Hyperlipidemia
4. Dryness of skin,coarseness of hair	
5.Menstrual irregularities	
6.Decresed mental concenteration	

HYPERTHYROIDISM

SYMPTOMS	SIGNS
1. Nervousness	Proptosis
2. Disturbed sleep	Lid lag
3. Palpitations	Tachycardia
4. Sweating	Tremor
5. Diarrhoea	Warm and Moist skin
6. Heat intolerance	Goitre
7. Weight loss	

THYROID FUNCTION TEST

1.BMR MEASUREMENT[53]

Tissue response (oxygen consumption) is measured by BMR .

This test has poor sensitivity and specificity.

Previously used as thyroid function test, nowadays not preferred.

Normal value ±20 percent.

Hyperthyroidism elevated to 100 percent.

Hypothyroidism declines to -30 to -40 percent.

2. PROTEIN BOUND IODINE ESTIMATION [53]

It reflects the level of circulating T_3 and T_4 bound to the plasma protein.

This test has poor sensitivity and specificity.

Normal value 6gm/100ml.

Increased level seen in hyperthyroidism, space user.

Decreased level seen in hypothyroidism, pregnancy and acute thyroiditis.

3.RADIO ACTIVE IODINE UP TAKE[53]

This test is performed by 25 curies radio active iodine I^{131} given in 100ml of water and thyroid up take is estimated by placing a x-ray counter over the neck. An area over the thigh is taken for count and final measurement is thigh count subtracted from neck count to correct for non thyroidal radio activity in neck.

Normal value (at24hrs) - 20-40%

Hyperthyroidism - elevation to 60%

Hypothyroidism - less than 20%

4. FREE T_3, T_4, TSH LEVELS IN BLOOD[53]

This is best and widely used test.

It gives accurate measurement of thyroid levels.

Radio immuno assay or ELISA method used

Total T_3 and T_4 estimation has its drawbacks

- The major portion which is bound and not taking part in metabolism .
- Thyroid binding globulin alters the total hormone levels in conditions like pregnancy.

Free T_3, T_4 truly represent thyroid activity which is preferred over total T_3 and T_4.

TSH levels is an important parameter of thyroid function which reflects the integrity of hypothalamic pituitary axis

	NORMAL VALUES	HYPERTHYROIDISM	HYPOTHYROIDISM
FREE T_3	2.3- 4.2 pg/ml	↑	↓
FREE T_4	0.8 – 2 ng/dl	↑	↓
SERUM TSH	0.5- 5.0mIU/ml	↓	↑

5.THYROID SCAN[53]

Radio nucleotide scan of thyroid is performed by either Iodine131 or Technectium 99 which is helpful in demonstrating functioning thyroid tissue.

6. ANTITHYROID ANTIBODIES[53]

This test is useful in demonstrating autoimmune thyroid disorders like Hashimoto's thyroiditis.

SUB CLINICAL HYPOTHYROIDISM[44]

It is a condition in which thyroid stimulating hormone is elevated with normal serum free thyroxine and triodo thyronine levels.

Age – elderly age group

Prevalence in adults -2-10%

AETIOLOGY

1. Autoimmune thyroiditis – Hashimoto's disease
2. Radio active iodine treatment for hyperthyroidism, antithyroid drugs.
3. Neck surgery and radiotherapy
4. Lithium and amiodarone

CLINICAL FEATURES

Few patients present with symptoms of hypothyroidism like dryskin, intolerance to cold, constipation and easy fatiguability, coarse hair , goitre, hyperlipidemia, hyperhomocysteinemia, bradycardia, coronary artery disease.

ASSOCIATED DISEASES

Cardiovascular is first and foremost associated disease. Elevation of serum triglycerides, total cholesterol and low density liproprotein present .

L-thyroxine treatment decreases LDL and total cholesterol levels, which proved in some studies. Left ventricular ejection fraction improvement is seen in Echocardiogram with L-thyroxine management.

WHEN TO TREAT

1. Symptomatic
2. TSH level more than 10mIu/ml

AIM OF THE TREATMENT

To lower TSH level to 1-3mIu/L

CONTRAINDICATIONS:

Osteoporosis

COMPLICATIONS

(a) Hypercholesterolaemia

(b) Coronary artery disease

(c) Overt hypothyroidism

Risk of progression to overt hypothyroidism if TSH level more than 10 IU/ml is 1-20 percent risk/year

SUBCLINICAL HYPERTHYROIDISM [44]

DEFINITION

Thyroid stimulating hormone present below the normal limits in undetectable range with normal free serum thyroxine and triiodo thyronine levels.

ETIOLOGY

(1) Partially treated overt hyperthyroidism

(2) Early stage Grave's disease

(3) Multinodular goiter

(4) Silent thyroiditis

(5) Post partum thyroiditis

CLINICAL FEATURES

Non specific symptoms

(1) Malaise

(2) Nervousness

(3) Anxiety

Signs

Tachycardia

In elderly patients sometimes atrial fibrillation may be the first manifestation

PATHOPHYSIOLOGY

Pituitary gland sensitiveness to small elevation in serum T_3 & T_4 levels is responsible for this condition

COMPLICATIONS

1. Cardiac complications – atrial fibrillation
2. Osteoporosis
3. Neuropsychiatric abnormalities

Progression to overt hyperthyroidism – 1-3 percent

Antithyroid drugs-methimazole 5mg daily

Propylthiouracil 50 to 100mg daily.

Propylthiouracil mainly used in childbearing age group women.

Trial of antithyroid drugs for 6 – 12 months tried initially.

VARIOUS GUIDELINES

AACE(American association of clinical Endocrinologists)2002 [43] recommends screening for older patients especially women. Mild subclinical hypothyroidism if TSH level is 4-10Miu/ml and severe if TSH level is >10mIU/ml, treatment regarding subclinical hypothyroidism is controversial. Treatment with thyroxine is warranted if mild subclinical hypothyroidism symptomatic and severe subclinical hypothyroidism follow up annually if TPO ANTIBODIES positive and every 3-5 years in negative TPO antibodies.

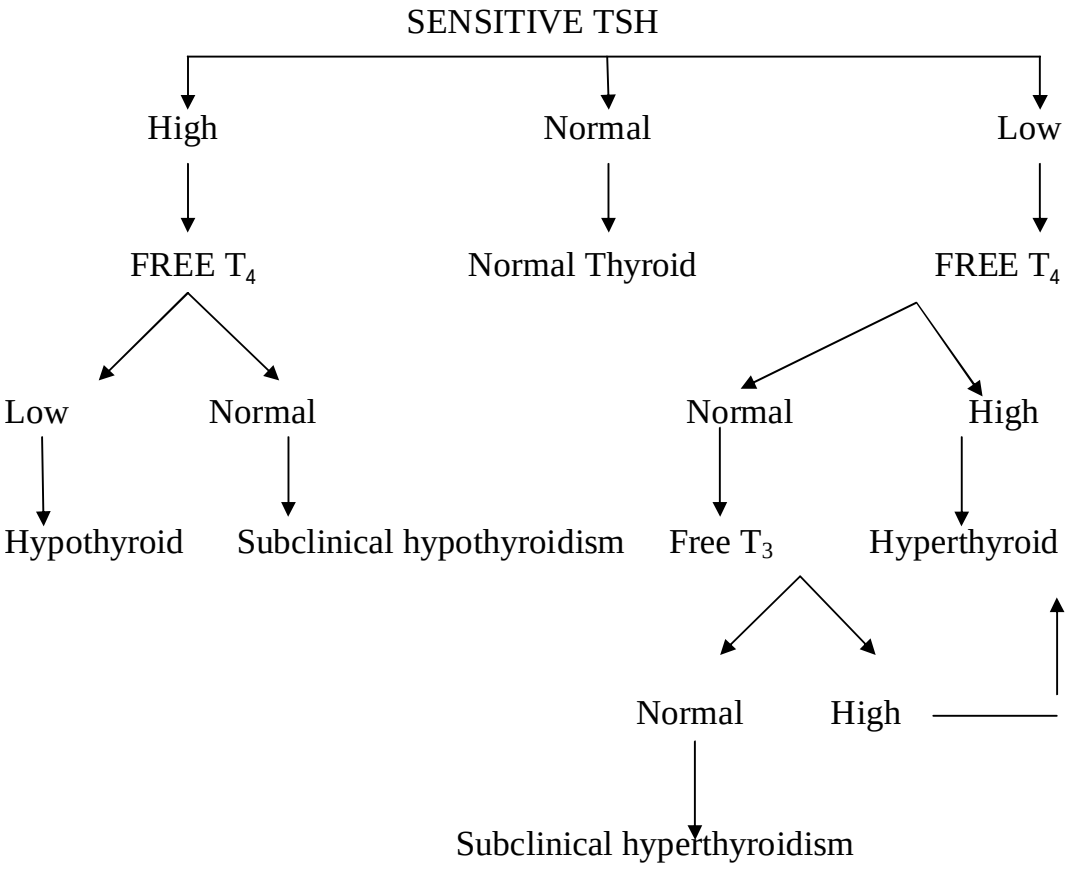
ATA(American Thyroid Association) recommends screening for both men and women after 35 years and every 5 years.

ACOG (American college of Obstetrician and Gynecology) recommended screening with TSH assay in asymptomatic women over the age of 40 years.

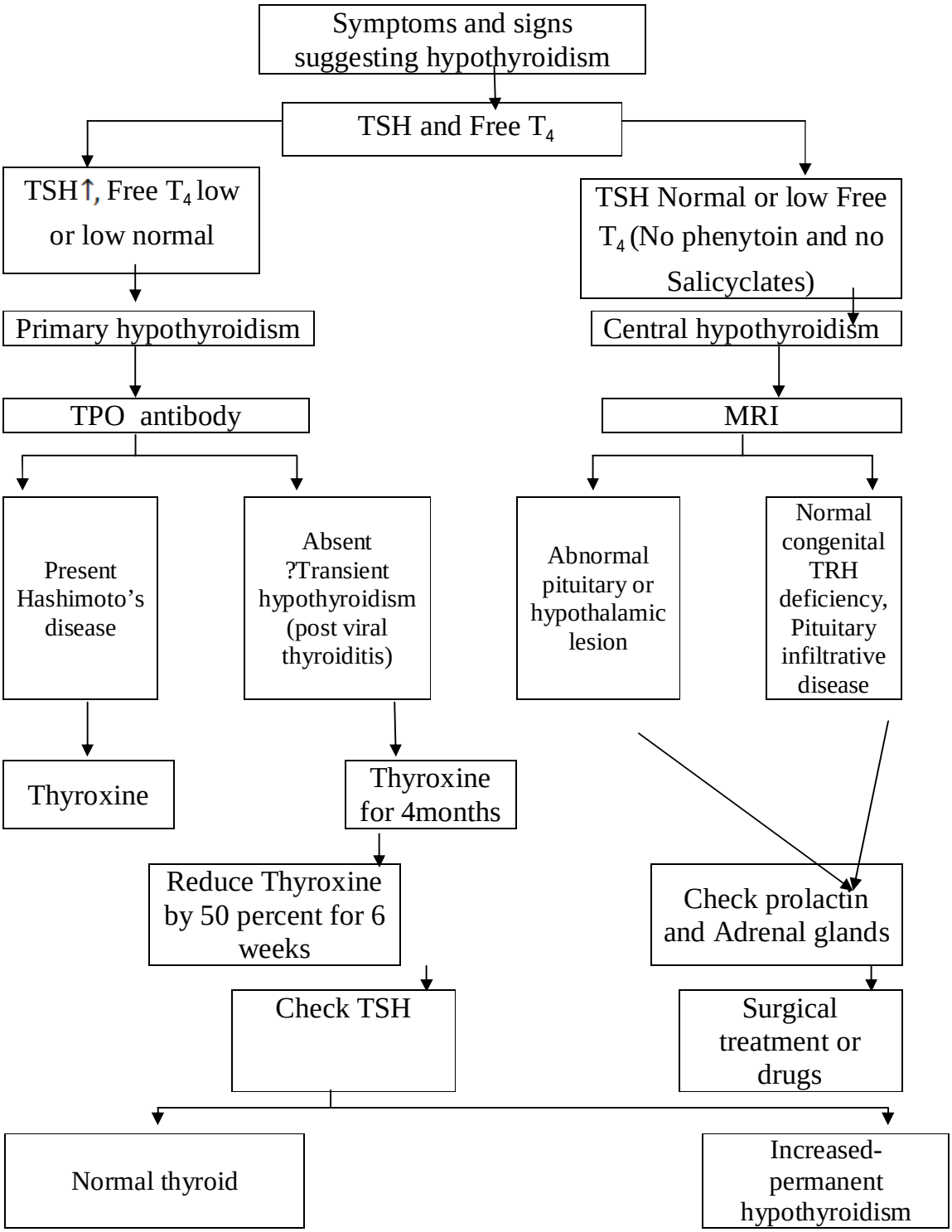
National academy of clinical biochemistry reference TSH value 0.4-2.5mIU/ml

National health and nutrition examination survey screened normal population found target TSH value-0.3-2.5 mIU/ml.

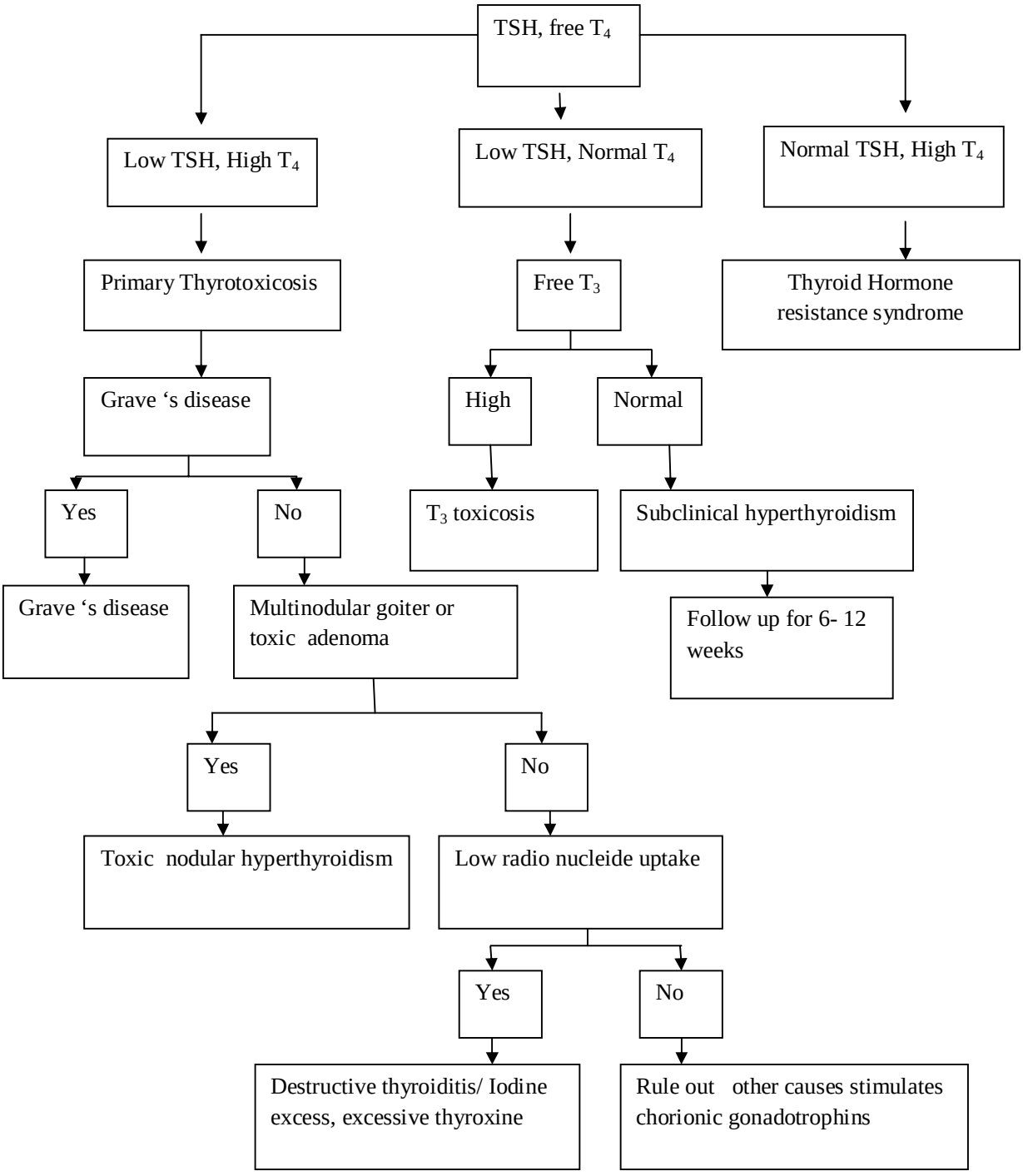
THYROID EVALUATION[47]



HYPOTHYROIDISM EVALUATION[45]



HYPERTHYROIDISM EVALUATION



ANAEMIA PREVALENT IN THYROID DYSFUNCTION--WHY?[42]

(1) Impaired haemoglobin synthesis due to deficiency of thyroxine

(2) Increased loss of iron with menorrhagia and decreased absorption of iron in intestine.

(3) Deficiency of folic acid due to decreased intestinal absorption.

(4) Pernicious anaemia due to vitamin B_{12} deficiency

Pernicious anaemia is common in autoimmune diseases like chronic thyroiditis which is associated with thyroid auto antibodies formation. Other conditions associated with pernicious anaemia are diabetes mellitus (islet cell autoantibodies) and adrenal insufficiency (adrenal autoantibodies).

HISTORICAL REVIEW

1. Pushpa Bikaha Ram et al [5] studied about impaired thyroid function in patients with menstrual disturbances for three months in above 12 years. Total patients are 40, 82.5% (33) patients had hypothyroidism and 17.5% (7) had hyperthyroidism. Conclusion of study is that prevalence of menstrual disturbances are menorrhagia (40%), menometorrhagia (10%) hypomenorrhoea (15%) secondary amenorrhoea (12.5%)

2. Krassas et al[25] studied about menstrual disturbances in hypothyroidism patients. Totally 171 hypothyroid patients included in the study. 26.9% (46) patients had subclinical hypothyroidism, 24.6%(42) had mild hypothyroidism 48.5%(83) had severe hypothyroidism 88.9% (88) patients were thyroid antibodies positive. 21.6%patients were positive for thyroid antibodies had menstrual irregularities. The conclusion of this study is hypothyroidism in women is less frequently associated with menstrual disturbances. In comparison with mild hypothyroidism, menstrual irregularities are more common in severe hypothyroidism. Oligomenorrhoea and menorrhagia are the most common menstrual disturbances.

3. Krasas et al[32] conducted study about menstrual disturbances in thyrotoxicosis patients. 214 patients are included in the study. 78.5%

(168) patients were present with regular menstrual cycles and 21.5% (46) with irregular cycles. He concluded that T_4 level changes were higher in menstrual disturbances patients, no significant changes in T_3 levels and Hyperthyroidism has less association with menstrual abnormalities.

4. Koutras[28] studied menstrual disturbances in thyroid disease in 214 patients and 21.5% had menstrual disturbances. Polymenorrhoea prevalent in hypothyroidism were identified.

5. Kakuno et al[4] conducted study in Japan in 2010 about Thyroid dysfunction. 586 patients were included in the study. Final conclusion of this study is 34.8% of severe hypothyroidism patients had menstrual disturbances, mild or moderate hyperthyroidism patient had 2.5% secondary amenorrhoea and 3.7% hypomenorrhoea .

6. Wilansky et al 1989[34] studied regarding association of menorrhagia with hypothyroidism by thyrotrophin releasing hormone in 67 patients. 21.73% (15)patients revealed mild primary hypothyroidism had good response to thyroxine treatment and symptoms subsided within 3-6 months.

7. Solomon et al[19] studied for 14yrs in reproductive age group (20-35yrs) and found that menstrual cycle irregularities is a predisposing factor for cardiovascular disease.

8. Tamasi et al[29] studied about pulsatile gonadotrophin secretion in hypothyroid women of reproductive age in 1997 and found that elevated baseline levels with pulsatile gonodotrophin secretion and . gonodotrophin had decreased biological potency and mild ovarian resistance.

9. Borna et al 2002[20] studied 325 thyroid patients and found significant association of menstrual irregularities with thyroid patients. 44.2% patients with hyperthyroidism had oligomenorrhoea and hypothyroid patients had polymenorrhoea, oligomenorrhoea, and menorrhagia.

10. Kaur[3] studied about 100 patients regarding thyroid dysfunction in dysfunctional uterine bleeding. 14 patients are hypothyroid and one patient is hyperthyroid. Menorrhagia presented in 64.3% patients 21.4% with oligomenorrhoea and hypothyroidism is found to have menorrhagia. TSH levels less than 13.5 mIU/ml is either presented with menorrhagia or metorrhagia and value above 20 mIU/ml is presented with oligomenorrhoea. 64.3% hypothyroid patients had proliferative, 21.4% had endometrial hyperplasia and remaining 14.3% had secretory endometrium.

11. Sood[1] studied 394 infertile women in 2012 for prevalence of hypothyroidism and evaluation of response of treatment for

hypothyroidism on infertility. Study detected 23.9% hypothyroidism patient. 76.6% infertile women conceived with in short period of time(six month to one year). After treatment with thyroxine 25-100µgm improved fertility outcome, reduces more expensive tests and invasive procedures in those patients.

12. Lazarus[21] studied about thyroid dysfunction and postpartum thyroiditis. The conclusion of study is the incidence of Postpartum thyroid disease occurs in 5-9 percent. Postpartum thyroid dysfunction occurs in 50%patients with thyroid peroxidase antibody positive.Hypothyroidism occurs significantly in transient postpartum thyroid dysfunction.

13. Surks et al[17] studied regarding subclinical thyroid for seven years and reviewed about 195 papers and concluded that subclinical thyroid disease with symptom association are few and recommend against routine treatment. TSH level ranges from (S TSH 0.1 – 0.4mIU/l. or 4.5-10 mIU/l.

14. Beckmann and haberette[6] studied 337 women suffering from polycystic ovarian syndrome and concluded that TSH value more than 2 mIU/l were younger, had higher body mass index and insulin resistant than women with TSH less than 2mIU/l

15. Knudsen et al[13] studied 4082 patients about small difference in thyroid function and body mass index. This study show that positive association between body mass index and TSH level, negative association between BMI and serum T_4 and no association between serum T_3 levels and BMI. This study concluded that slightly increased TSH levels had good association with obesity.

16. Prentice[23] studied retrospective analysis of 50 myxedema patients in 2000 and found that 56% had menstrual disturbances. The most common abnormality of menstrual disturbance is menorrhagia about 36%. Routine thyroid function are of no help in menorrhagia. Evaluation and TRH should be tested for unexplained menorrhagia is the final conclusion.

17. Zella Ziegler[37] reported two hypothyroid cases on methyldopa and platelet function were evaluated. Comparative study were done with seven patients of hypothyroidism, not on drugs. BT were higher in patients taking methyldopa (33. Min and 26 minutes) and platelet aggregation response to epinephrine, collagen and ristocetin were abnormal. Platelet aggregation response and bleeding time came back to normal limits with thyroxine treatment. Factor VIII and VIII ristocetin cofactor activity were normal. This study finally concluded that

methyldopa in hypothyroidism potentiates the platelet function defects mildly.

18. Zella Ziegler[35] studied 12 hypothyroid patients with aspirin challenge and concluded that TSH levels more than 60 IU/ml, had elevated hoemostatic activity to aspirin, which is measured by bleeding time. Thrombin induced platelet serotonin release were below normal after aspirin ingestion. factor VIII and von willebrand factor complex are normal.

19. E.K.Akande studied about the plasma concentration of Gonadotrophins, oestrogen and progesterone in hypothyroid females for 10-14 days consecutively. FSH/LH ratio higher in hypothyroidism in both phases of menstrual cycles, hormone levels were low in this study and finally concluded that change in ratio of FSH/LH lead to ovulation failure.

20. Abdel hamid attia et al[11] made comparative study about subclinical hyperthyroidism as potential factor for dysfunctional uterine bleeding. 40 euthyroid menorrhagia patients and 20 women having normal cycles were included in the study. This study had significant difference between study and control group in levels of serum TSH, free T_3 and T_4. prolactin significantly increased in menorrhagia group.

21. Raber et al[18] studied 1003 patients about the influence of serum prolactin in patients with subclinical and overt hypothyroidism and thyroxine treated with hyperprolactinemic patients to differentiate between hypothyroidism impaction of confounding drugs and menstrual irregularities. Results of this study are menstrual irregularities are not common in hyperprolactinemia than in normo prolactinemic women. Antipsychotic drugs causes hyperprolactinemia but not antidepressants. Thyroxine therapy decreases prolactin levels but menstrual irregularities failed to rectify. Final conclusion of this study are menstrual disturbance do not have relation with high prolactin levels in hypothyroidism.

22. Croatian article 1999[26] published about anaemia in hypothyroidism. Anaemia may be the first sign of hypothyroidism and 20-60% are anaemic in hypothyroidism. Anaemias of uncertain etiology may be hypothyroid. Pernicious anaemia is 20 times more common in hypothyroidism. Normocytic anaemia occurs due to thyroid hormone deficiency due to an adaptation to a decreased basal metabolism. Thyroid hormones directly stimulate growth of erythroid colonies and indirectly through erythropoietin.

23. Sheldon S.Stoffer 1982[56] revealed case reports about menstrual disturbances and minimal thyroid insufficiency relationship and

levothyroxine response to menstrual irregularity. After levothyroxine therapy discontinuation, menstrual disturbances returned in two cases. The responsible mechanism for menstrual dysfunction with minimal thyroid insufficiency is not clear.

24. I Ross Mc dougall 1992[31] gave the clinical impression that hypothyroid patients have bleeding tendency, mechanism for bleeding diathesis is not known. low concenteration of factor VIII and coagulation inhibitors may be responsible for bleeding tendency. Treatment with thyroxine helps to overcome this problem.

25. Dipak Lahiri and Das Gupta[30] studied 189 hypothyroid females about the menstrual pattern and fertility status. 71.09% had subclinical hypothyroidism, 46.87% had normal menstrual cycles. Oligomenorrhoea was the common abnormality in early age group and menorrhagia common in later age group as per this study, more subclinical cases are prevalent, so it is necessary to evaluate thyroid function in women with menstrual disorders, infertility and recurrent pregnancy loss.

26. American family physician 2004[15] says that after excluding pregnancy and iatrogenic cause. Patient must undergo evaluation to rule

out thyroid disease 23.4% hypothyroidism associated with menstrual irregularities and 21.5% hyperthyroidism also associated.

27. Re-examining treatment for mild hypothyroidism in 2008 [7] and prevalence of subclinical hypothyroidism in aging population is more than 10% . Euthyroid TSH level 0.45-4.5 mIU/L, subclinical hypothyroidism TSH level is 4.5-9.9mIU/L and subclinical hyperthyroidism TSH level is 0.10-0.45 mIU/L. American college of cardiology says that if TSH level more than 10mIU/L they will have two fold increased risk of heart failure.

28. Study regarding levothyroxine replacement on non-high density lipoprotein cholesterol in hypothyroid patients in 2007 in journal of clinical endocrinology[10] Increased levels LDL-C consistently associated with increased risk of development of cardiovascular diseases. Non HDL is better tool for risk assessment. Thyroxine replacement therapy induces reduction of non HDL-C levels, a novel atherogenic indicator in both subclinical and overt hypothyroidism.

29. Study regarding association between blood pressure and serum TSH in journal of clinical Endocrinology,2007[12]. Thyroid dysfunction increases the cardio vascular disease risk. There is an increased risk of hypertension in both hypothyroidism and

hyperthyroidism. Hypertension related to hypothyroidism reversed after thyroxine treatment . Mechanism responsible for hypertension is increased systemic vascular resistance and decreased arterial stiffness. There is positive and linear association between systolic, diastolic blood pressure and TSH and strong to influence the future risk of cardiovascular disease.

30. Neelu Sharma[(2)] studied about thyroid profile in menstrual disorders patients. He made a comparative study of group A- thyroid profile in menstrual irregularities patients (50) and group B- thyroid dysfunction patients (50) for menstrual disturbances.The conclusion of this study is 22% hypothyroidism , 14% hyperthyroidism in group A and 56% hypothyroid patients ,62% hyperthyroid patients in group B had menstrual cycle disturbances.

METHODOLOGY

MATERIALS AND METHODS

Type of Study:- **Open label, randomised Prospective Trial**

Period of study:- July 2011 to October 2012

Sample size -110

Proportion (n) $= Z^2_{1-\alpha} P(1-P) / d^2$

P – estimated proportion

d- desired precision

$n = (1.96)^2 \ 0.07 \ (0.93) / 0.05 \times 0.05$

$= 3.8416 \times 0.0651 / 0.0025$

$= 100.05$

Place of study :- Department of Obstetrics and Gynaecology, Govt Kilpauk Medical College Hospital, Chennai.

Ethical committee clearance obtained on February 2011.

SELECTION OF STUDY POPULATION

The study comprised of 110 abnormal uterine bleeding cases admitted in the gynaecology ward through OPD.

The Study group included women with following complaints.

1) Oligomenorrhoea
2) Hypomenorrhoea
3) Menorrhagia
4) Polymenorrhoea
5) Amenorrhoea

INCLUSION CRITERIA

1) Age group 18-45 years
2) Women with any of the following menstrual disturbances- menorrhagia, Oligomenorrhoea, Hypomenorrhoea, Polymenorrhoea, Amenorrhoea with no pelvic pathology.
3) Non IUCD user
4) Not using any hormonal preparations
5) With symptoms of thyroid dysfunction

EXCLUSION CRITERIA

1) Presence of palpable pelvic pathology – Fibroids, polyp, cervical growth
2) History of Bleeding diathesis and clotting abnormalities
3) Patient on drug like aspirin, heparin, antithyroid agents and thyroxine.
4) Known case of diabetes mellitus and systemic hypertension

METHDOLOGY

The patients selected for the study were counselled for undertaking the thyroid function test. Detailed menstrual history including length of the cycle, duration of the flow and number of pads usage were elicited and history regarding symptoms of hypothyroidism and hyperthyroidism also elicited. General examination including anaemia, height of the patients (cm), weight of the patient (kg), thyroid enlargement were assessed.

Body mass index was calculated using height and weight. Systemic examination were carried out. Abdominal examination, speculum and pelvic examination done to rule out other causes of abnormal uterine

bleeding. Investigations-complete blood count, platelet count, bleeding time, and clotting time, urine routine, blood sugar, RFT carried out. USG Pelvis done. Histopathological examination of endometrium performed by pipelle's curette.

Thyroid function test-Serum TSH, free T_3 and free T_4 are compulsory. 5ml of blood was taken in dry glass contains without any anticoagulant. Fasting sample was taken, TSH assay was performed using IRMA Kit (Immuno radio metric assay)

PHYSIOLOGICAL RANGE

TSH-0.5 to 5 m IU/ml

RESULTS AND ANALYSIS

RESULTS OF THE STUDY

Patients with thyroid dysfunction were grouped as thyoid dysfunction cohort and the remaining patients had AUB alone were grouped as normal cohort.

The following factors were taken for analysis- age , parity ,AUB types, socioeconomic status,episodes of AUB, body mass index, family history of thyroid disorders,uterine size, endometrial histopathology ,haemoglobin, bleeding time,clotting time and platelet count. The predictor of thyroid dysfunction was analysed using the factor duration of AUB and regression coefficient curve.Logistic regression model analysis is used to find out the effective predictor of thyroid dysfunction.

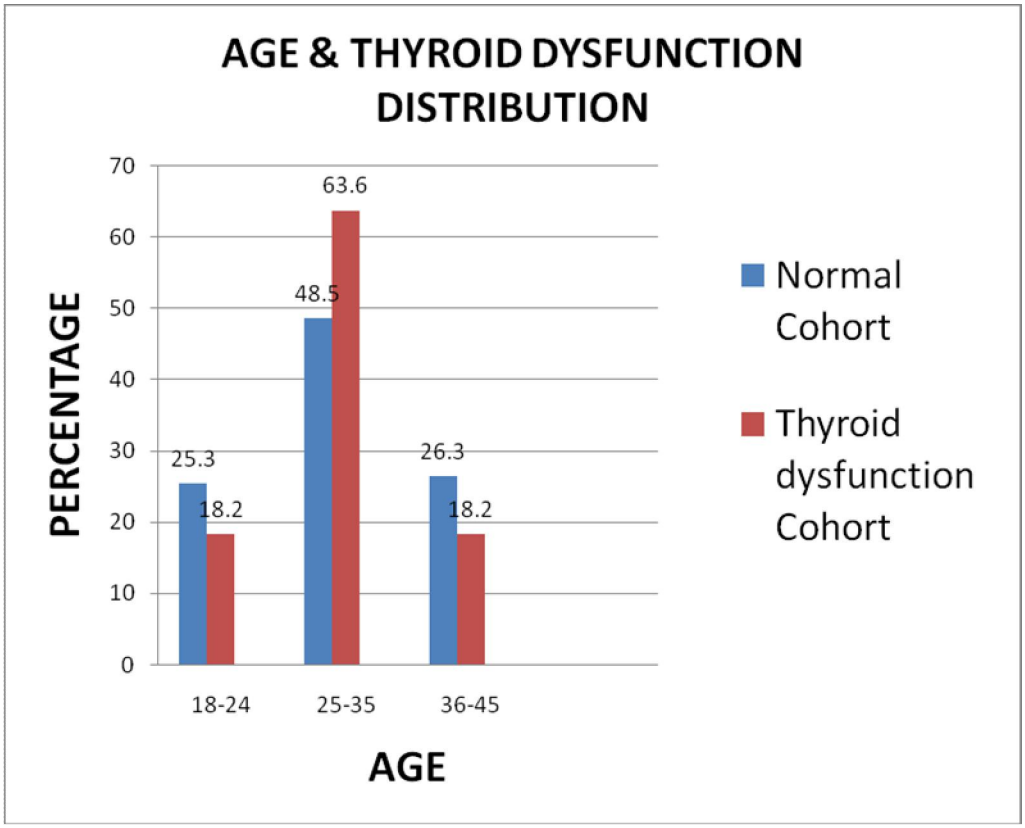
Table 1:

AGE & THYROID DYSFUNCTION DISTRIBUTION

AGE (Years)	NORMAL COHORT		THYROID DYSFUNCTION COHORT	
	No of cases	%	No of cases	%
18-24	25	25.3	2	18.2
25-35	48	48.5	7	63.6
36-45	26	26.3	2	18.2

Chi-square = 0.91 p = 0.6 not significant

Among 110 patients,48 (48.5%) belongs to normal cohort and 7 (6.3%) belongs to thyroid dysfunction group in age group 25-35 years . Out of 11 thyroid dysfunction ,majority 7 (63.6%) were in age group of 25-35 years.



There is no significant difference between thyroid dysfunction and non thyroid dysfunction with respect to age group.

Table 2:

PARITY & THYROID DYSFUNCTION DISTRIBUTION

PARITY	NORMAL COHORT		THYROID DYSFUNCTION COHORT	
	No of cases	**%**	**No of cases**	**%**
NulliParous	4	4	1	9.1
$P1L_1$	9	9.1	1	9.1
P2L2	54	54.5	6	54.5
P3L3	25	25.3	2	18.2
P4L4	7	7.1	1	9.1

Chi-Square = 0.813 P = 0.6 not significant

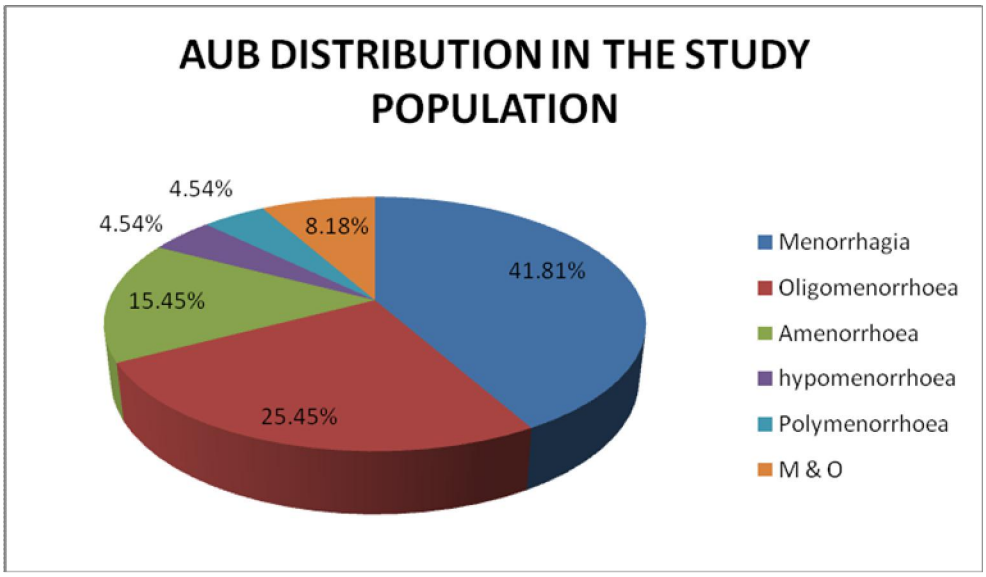
Multiparous (P_2L_2)54.5% in the normal cohort and 54.5% in the thyroid dysfunction cohort. No statistical significance between thyroid and non thyroid samples with respect to parity.

Table 3 :

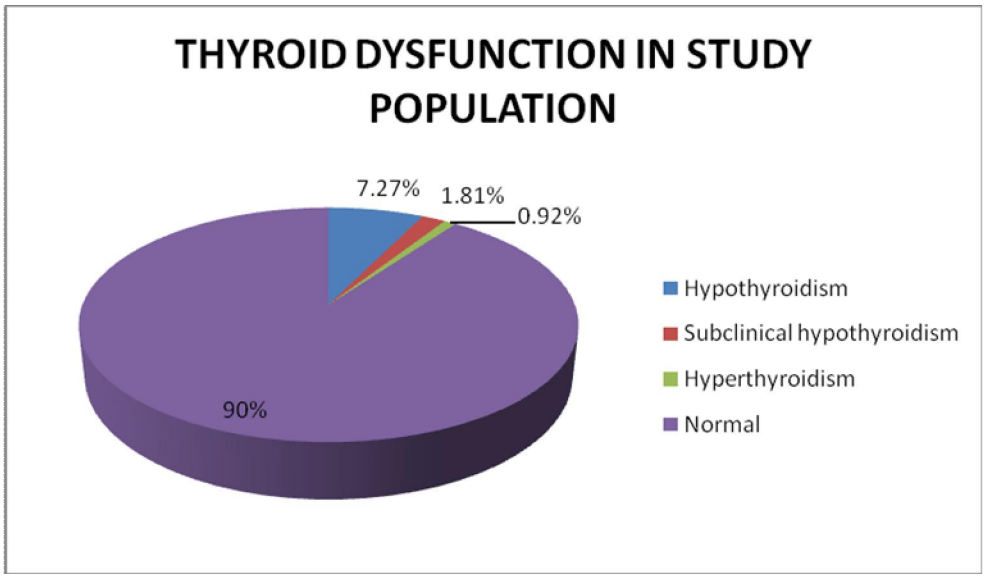
AUB & THYROID DYSFUNCTION DISTRIBUTION

AUB TYPES	NORMAL COHORT		THYROID DYSFUNCTION COHORT	
	No of cases	%	No of cases	%
Menorrhagia	39	39.4	7	63.6
Oligomenorrhoea	28	28.3	0	0
Amenorrhoea	16	16.2	1	9.1
Hypomenorrhoea	4	4	1	9.1
Polymenorrhoea	5	5.1	0	0
Menometorrhagia	7	7.1	2	18.2

Menorrhagia presents in 39.4% patients in normal cohort and 63.6% in thyroid dysfunction cohort. Hypomenorrhoea presents in 4% normal cohort and 9.1% thyroid dysfunction cohort.



Out of 110 patients, menorrhagia in 41.81%, oligomenorrhoea in 25.45%, amenorrhoea in 15.45%, hypomenorrhoea in 4.54%, polymenorrhoea in 4.54% and metorrhagia in 8.18% of the AUB population.



Hypothyroidism presents in 7.27%, subclinical hypothyroidism in 1.81% and hyperthyroidism in 0.92% patients.

Table 4 :

MENORRHAGIA & THYROID DYSFUNCTION DISTRIBUTION

AUB	NORMAL COHORT		THYROID DYSFUNCTION COHORT	
	No of cases	**%**	**No of cases**	**%**
Menorrhagia	39	39.4	9	81.8
Others	60	60.6	2	18.2

Chi-square-0.008 p-0.01 significant

Menorrhagia in 39.4% patients in normal cohort and 81.8% patients in thyroid dysfunction cohort.

There exist a definite significance between menorrhagia and thyroid dysfunction patients.

Table 5 :

OLIGOMENORRHOEA & THYROID DYSFUNCTION DISTRIBUTION

AUB	NORMAL COHORT		THYROID DYSFUNCTION COHORT	
	No of cases	**%**	**No of cases**	**%**
Oligomenorrhoea	28	28.3	2	18.2
Others	71	71.7	9	81.8

Chi-Square -0.377 P = 0.75 not significant

Oligomenorrhoea presents in 28.3% patients in normal cohort and 18.2% patients in thyroid dysfunction cohort. No statistical significance between Oligomenorrhoea and thyroid dysfunction.

Table 6 :

AMENORRHOEA & THYROID DYSFUNCTION

AUB	NORMAL COHORT		THYROID DYSFUNCTION COHORT	
	No of cases	**%**	**No of cases**	**%**
Amenorrhoea	16	16.2	1	9.1
Others	83	83.8	10	90.9

Chisquare-0.465 **p-0.9303 not significant**

Amenrrhoea presents in 16.2% patients of normal cohort and 9.1% patients of thyroid dysfunction cohort. No statistical significance between amenorrhoea and thyroid dysfunction.

Table 7 :

HYPOMENORRHOEA & THYROID DYSFUNCTION

DISTRIBUTION

AUB	NORMAL COHORT		THYROID DYSFUNCTION COHORT	
	No of cases	**%**	**No of cases**	**%**
Hypomenorrhoea	4	4	1	9.1
Others	95	96	10	90.9

Chi-Square -0.415 P = 0.8 not significant

Hypomenorrhoea presents in 4% of normal cohort and 9.1% in thyroid dysfunction cohort. No statistical significance between hypomenorrhoea and thyroid dysfunction.

Table 8 :

POLYMENORRHOEA & THYROID DYSFUNCTION

DISTRIBUTION

AUB	NORMAL COHORT		THYROID DYSFUNCTION COHORT	
	No of cases	**%**	**No of cases**	**%**
Polymenorrhoea	5	5.1	0	0
Others	94	94.9	11	100

Chi-Square -0.5844 P = 0.99 not significant

Polymenorrhoea presents in 5.1% in normal cohort and no patients in thyroid dysfunction cohort. No stastitical significance exists between thyroid dysfunction and polymenorrhoea.

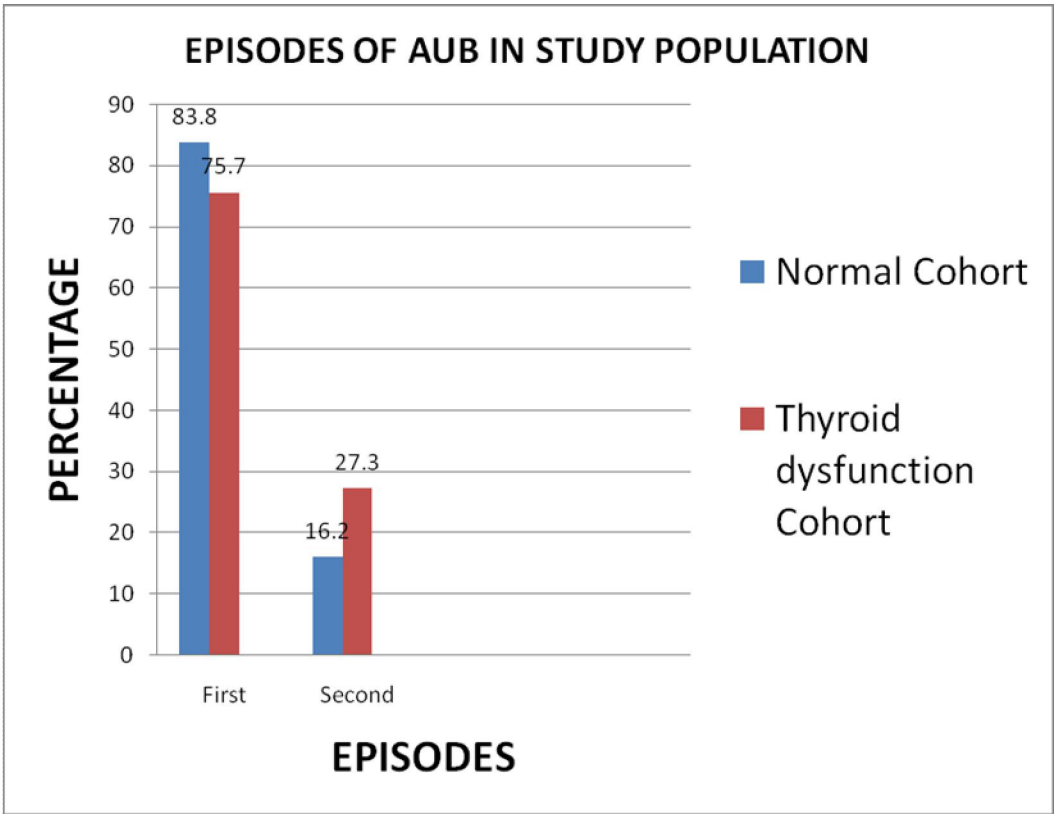
Table 9 :

EPISODES OF AUB IN STUDY POPULATION

EPISODES OF AUB	NORMAL COHORT		THYROID DYSFUNCTION COHORT	
	No of cases	%	No of cases	%
First	83	83.8	8	72.7
Second	160	16.2	3	27.3

Chi-Square -0.855 P = 0.3 not significant

Majority of the patients came to hospital in the first episode -83.8% in normal cohort and 75.7% in thyroid dysfunction cohort.



No statistical significance between thyroid and non thyroid samples with respect to Episodes of AUB

Table 10:

SOCIOECONOMIC STATUS & THYROID DYSFUNCTION DISTRIBUTION

SOCIOECONOMIC STATUS & THYROID	NORMAL COHORT		THYROID DYSFUNCTION COHORT	
	No of cases	%	No of cases	%
Upper Middle	14	14.1	1	9.1
Lower Middle	42	42.4	3	27.3
Upper Lower	43	43.4	7	63.6

Chi-Square = 1.6 P =0.4 Not significant

Majority of AUB patients 43.4% in normal cohort and 63.6% in thyroid dysfunction cohort belongs to upperlower socioeconomic class.

No statistical significance exists between socioeconomic status and thyroid dysfunction.

Table 11 :

FAMILY HISTORY AND THYROID DYSFUNCTION

DISTRIBUTION

Family History	NORMAL COHORT		THYROID DYSFUNCTION COHORT	
	No of cases	%	No of cases	%
Present	3	3.01	2	18.1
Absent	96	96.99	9	81.9

18.1% thyroid dysfunction had positive association with family history of thyroid disorders. 3% of normal cohort had association with family history of thyroid disorders.

Table 12 :

UTERINE SIZE & THYROID DYSFUCTION DISTRIBUTION (USG)

UTERINE SIZE & THYROID	NORMAL COHORT		THYROID DYSFUNCTION COHORT	
	No of cases	%	No of cases	%
Normal	67	67.7	3	63.6
Bulky	32	32.3	8	36.4

Chi-Square = 6.98 P =0.08 not significant

32.3% in normal cohort and 36.4% in thyroid dysfunction cohort had bulky uterus. No stastitical association exists between thyroid dysfunction and uterine size.

Table 13 :

BMI & THYROID DYSFUNCTION

	NO.OF CASES	**MEAN BMI**	**STANDARD DEVIATION**	**STANDARD ERROR OF MEAN**
Normal Cohort	99	22.51	1.71	0.172
Thyroid Dysfunction Cohort	11	26.95	2.891	0.872

P= 0.000<0.001 SIGNIFICANT.

Majority of thyroid dysfunction patients are in upper limit of over weight.

There exists a definite significance between thyroid dysfunction and body mass index.

Table 14 :

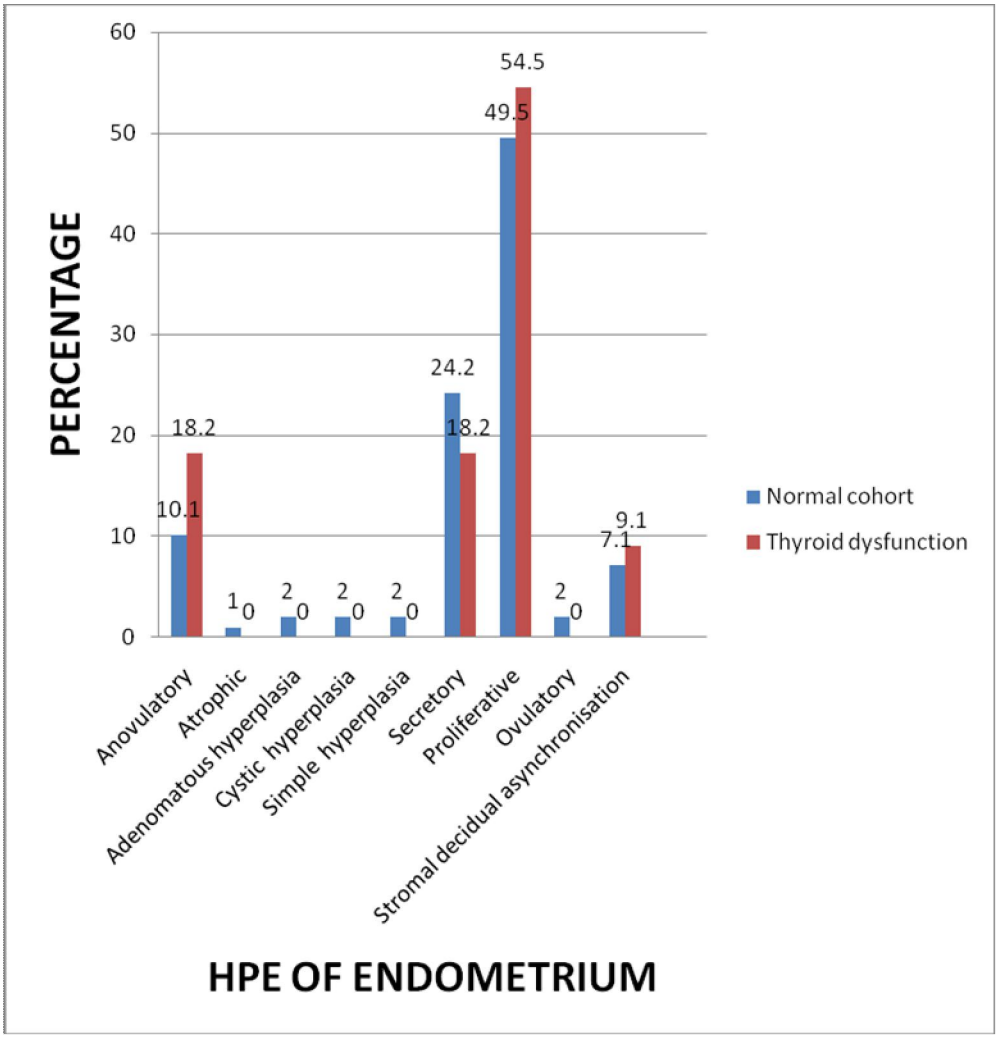
HPE OF ENDOMETRIUM DISTRIBUTION IN AUB POPULATION

HPE	NORMAL COHORT		THYROID DYSFUNCTION COHORT	
	No	Percent	No	Percent
Anovulatory	10	10.1	2	18.2
Atrophic	1	1	0	0
Adenomatous hyperplasia	2	2	0	0
Cystic hyperplasia	2	2	0	0
Simple hyperplasia	2	2	0	0
Secretory	24	24.2	2	18.2
Proliferative	49	49.5	6	54.5
Ovulatory	2	2	0	0
Stromal decidual asynchronisation	7	7.1	1	9.1

Chi-square-1.8 pvalue-0.98 Not significant

In histopathological examination of endometrium 49.5% in normal cohort and 54.5% thyroid dysfunction cohort reported as proliferative endometrium.

HPE OF ENDOMETRIUM DISTRIBUTION IN AUB POPULATION



No stastitical association exists between endometrial HPE and thyroid dysfunction.

Table 15 :

HPE ENDOMETRIUM AND THYROID DYSFUNCTION

DISTRIBUTION

HPE	NORMAL COHORT		HYPER THYROIDISM		HYPO THYROIDISM		SUBCLINICL HYPO THYROIDIM	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Anovulatory	10	10.1	0	0	1	12.5	1	50
Atrophic	1	1	0	0	0	0	0	0
Adenomatous hyperplasia	2	2	0	0	0	0	0	0
Cystic hyperplasia	2	2	0	0	0	0	0	0
Simple hyperplasia	2	2	0	0	0	0	0	0
Secretory	24	24.2	1	100	1	12.5	0	0
Proliferative	49	49.5	0	0	5	62.5	1	50
Ovulatory	2	2	0	0	0	0	0	0
Stromal decidual asynchronisation	7	7.1	0	0	1	12.5	0	0

Chi-square – 8.643 p value – 0.9 not significant

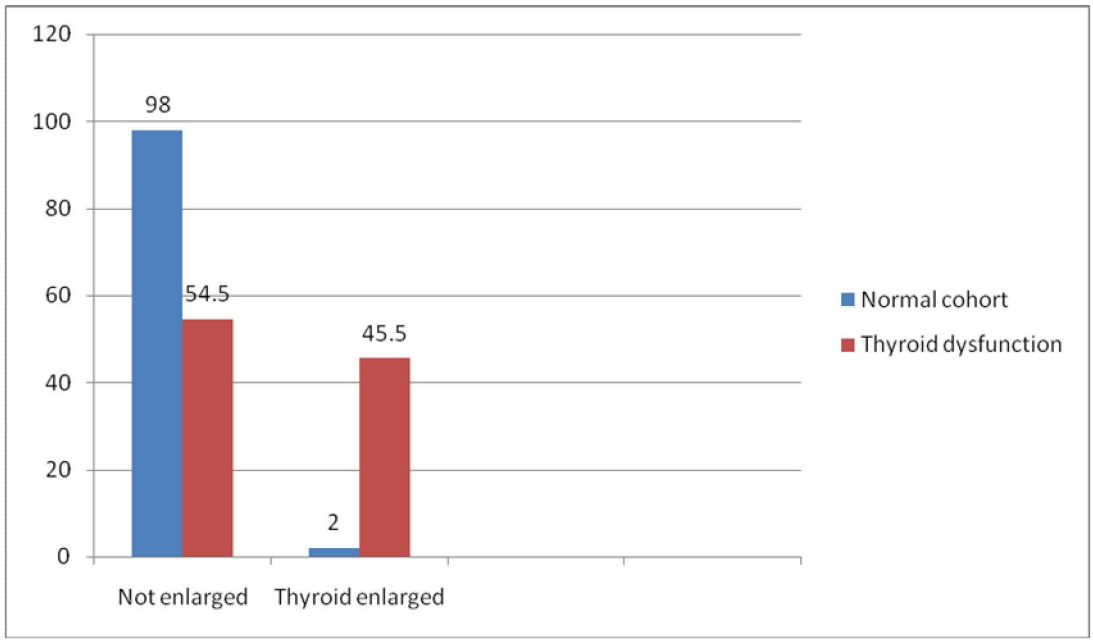
Majority of endometrial HPE came as proliferative endometrium in thyroid dysfunction and no endometrial hyperplasia in thyroid dysfunction cohort. No statistical significance exists between particular type of HPE and thyroid dysfunction.

Table 16 :

CLINICAL THYROID ENLARGEMENT DISTRIBUTION IN AUB

THYROID ENLARGEMENT	NORMAL COHORT		THYROID DYSFUNCTION COHORT	
	No.	Percent	No.	Percent
Not enlarged	97	98	6	54.5
Thyroid enlarged	2	2	5	45.5

Chisquare – 31.3 **p value – 0.000 Significant**



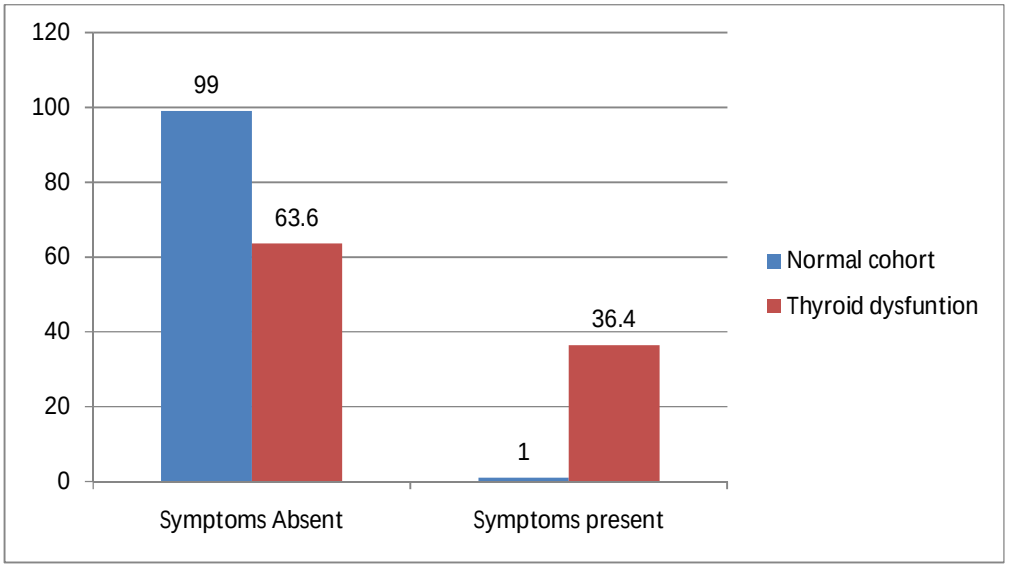
There exists a significant statistical association between clinical thyroid enlargement and thyroid dysfunction.

Table 17 :

SYMPTOMS OF THYROID DISEASE DISTRIBUTION IN AUB POPULATION

SYMPTOMS	NORMAL COHORT		THYROID DYSFUNCTION	
	No.	Percent	No.	Percent
Absent	98	99	7	63.6
Present	1	1	4	36.4

Chi-square – 28.5 **p value – 0.000 significant.**



There exists a stastitical significance between symptoms of thyroid disease and thyroid dysfunction .

Table 18 :

BLEEDING TIME IN AUB POPULATION

THYROID DYSFUNCTION	NUMBER	MEAN (Secs)	STANDARD DEVIATION	STANDARD ERROR OF MEAN
Absent	99	118.22	34.15	3.43
Present	11	106.36	43.36	13.075

P>0.05. Not significant. Though the Mean bleeding time in Thyroid dysfunction is decreased than the normal cohort, no statistical significance exists.

Table 19 :

CLOTTING TIME IN AUB POPULATION

THYROID DYSFUNCTION	NUMBER	MEAN (Secs)	STANDARD DEVIATION	STANDARD ERROR MEAN
Absent	99	375.53	106.44	10.69
Present	11	398.64	72.80	21.95

P value -0.485

Mean clotting time in thyroid dysfunction patients – 398.64 secs.

Mean clotting time in normal cohort (AUB patients – 375.53 secs)

Mean clotting time in thyroid dysfunction cohort increased than normal cohort.

Table 20:

PLATELET DISTRIBUTION IN AUB POPULATION

THYROID DYSFUNCTION	NUMBER	MEAN (Lakhs)	STANDARD DEVIATION	STANDARD ERROR MEAN
Absent	99	2.25	0.75	0.07
Present	11	2.29	0.78	0.235

p value -0.88

No difference found between platelet count in both groups. Mean platelet count is around 2.2 lakhs in both groups.

Table 21:

HAEMOGLOBIN IN AUB POPULATION

THYROID DYSFUNCTION	NUMBER	MEAN	STANDARD DEVIATION	STANDARD ERROR MEAN
Absent	99	8.99	0.370	0.112
Present	11	9.05	0.679	0.068

Mean hemoglobin level in normal cohort -8.9gm%

Mean hemoglobin level in thyroid dysfunction cohort-9gm%

No difference found between in both groups.

Table 22 :

DURATION OF AUB IN THE STUDY POPULATION

THYROID DYSFUNCTION	NUMBER	MEAN	STANDARD DEVIATION	STANDARD ERROR MEAN
Absent	99	5.5	3.340	0.336
Present	11	7.7	5.5	1.668

P value -0.06

Mean duration of AUB in thyroid dysfunction group-7.7 months.

Mean duration of AUB in normal cohort-5.5 months.

DURATION OF AUB- ROC CURVE

We have done the ROC curve, for Duration of AUB with respect to thyroid dysfunction. The following ROC curve indicates sensitivity is high , but specificity is low. The curve gives cut off criterion as >4.

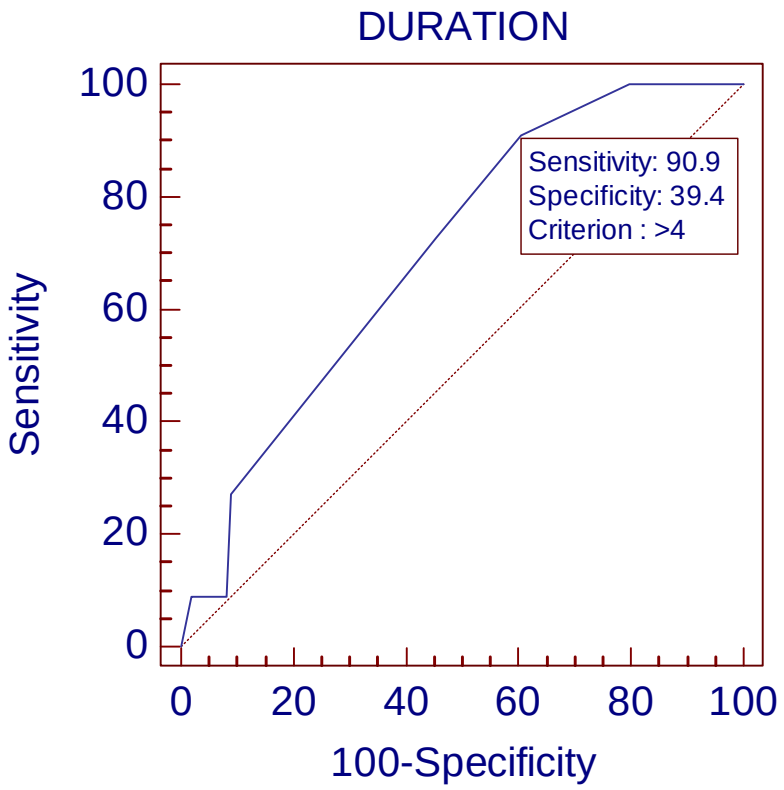


Table 23 :

BINARY LOGISTIC REGRESSION ANALYSIS

VARIABLES	Wald	Sig.	Exp(B)
Menorrhagia	4.064	0.044	11.596
Thyroid enlargement	10.050	0.002	87.104
Symptoms	6.689	0.010	58.566

Menorrhagia ,thyroid enlargement and symptoms overall predict 93.6% thyroid dysfunction patients. menorrhagia alone can predict 11.5% thyroid dysfunction patient

Table 24 :

THYROID DYSFUNCTION DISTRIBUTION AS PER INDIAN AND AACE(REFERENCES)

COHORT	INDIAN		AACE	
	NO.	PERCENT	NO.	PERCENT
Normal	99	90	86	78.2
Thyroid dysfunction	11	10	24	21.8

As per Indian standard, thyroid dysfunction association with abnormal uterine bleeding is 10%. According to AACE guidelines abnormal uterine bleeding associated with thyroid dysfunction is 21.8% in this study.

DISCUSSION

DISCUSSION

The study was conducted in the Department of Obstetrics and Gynecology, Kilpauk Medical College Chennai. It comprises of 110 abnormal uterine bleeding patients.

The study group includes abnormal uterine bleeding after excluding local pathology and systemic disease like diabetes mellitus, hypertension and known case of thyroid disorder.

The most common age group studied was between 25-35 years (55.5%).The present study concludes that there is no significant association between thyroid disorders with respect to age group. Majority of thyroid dysfunction (63.6%) were in the age group of 25-35 years.

Multiparous women (P_2L_2) constitute the major part of this study (54.5%) Most of the women affected by thyroid dysfunction were also multiparous (P_2L_2). Even though nulliparous women presents earlier to gynecology OPD for infertility evaluation, thyroid dysfunction is noted in 9.1% population in that age group.

The most common type of AUB presentation in this study is menorrhagia (43.6%). In thyroid dysfunction, menorrhagia constitutes the

highest abnormality (63.6%) and least is polymenorrhoea in both groups, AUB patients alone (5.1%) and thyroid dysfunction

COMPARISON OF MENORRHAGIA –PRESENT TRIAL Vs REFERENCES

STUDY	AUB	PERCENTAGE
Prentice [23]	Menorrhagia	36%
Kaur [3]	Menorrhagia	64.3%
Puspha Bikha Rom et al[5]	Menorrhagia	40%
Wil kansky [34]	Menorrhagia	22%
Present trial	Menorrhagia	43.6%

This study was against the study of Koutras[28] which revealed polymenorrhoea prevalence high in hypothyroidism.

Thyroid dysfunction is absent in oligomenorrhoea and polymenorrhoea . Next to menorrhagia, metorrhagia constitutes about 18.2% in the thyroid dysfunction group.

There exists no significant association between the episodes of AUB and thyroid dysfunction. Even though majority of women attended

Gynecology OPD in first episode in normal cohort is 83.8% and thyroid dysfunction cohort is 72.%.

Majority of women belongs to socio economic class upper lower, 43.4 % in normal cohort and 63.6%thyroid dysfunction cohort. No significant association is found between thyroid dysfunction and socio economic status.

Family history of thyroid disorders is present in 18.1% of thyroid dysfunction.

Bulky uterus is present in 32.3% normal cohort and 36.4% in thyroid dysfunction cohort. A significant association seen between the uterine size and thyroid dysfunction.

BMI in thyroid dysfunction group are in the upper limit of over weight group (mean BMI – 26.95) and normal BMI (mean BMI – 22.5) in normal cohort BMI, BMI and thyroid dysfunction have got significant association.

COMPARISON OF BMI-PRESENT TRIAL Vs REFERENCES

STUDY	BMI AND TSH
Knudsen et al [13]	Positive association
Beckmann and Haberette [6]	Positive association
Present study	Positive association

Most common endometrial HPE is proliferative in normal cohort (49.5 %) and in thyroid dysfunction cohort (54.5%) Endometrial hyperplasia absent in thyroid dysfunction cohort.

COMPARISON OF ENDOMETRIAL HISTOPATHOLOGY IN THYROID DISORDERS –PRESENT TRIAL Vs REFERENCES

STUDY	THYROID DISORDERS	ENDOMETRIUM HPE
Kaur [3]	Hypothyroidism	Proliferative - 64.3% Endometrial Hyperplasia - 21.4% Secretory - 14.3
Neelu Sharma [2]	Hypothyroidism	Proliferative - 36.36% Secretory - 21.4% Stromal Glandular Asynchronisation - 27.27%
Present study	Hypothyroidism	Proliferative – 62.5% Secretory - 12.5% Anovulatory – 12.5% Stormal Glandular Asynchronisation – 12.5%

Thyroid enlargement is present in 45.5% normal cohort and symptoms of thyroid disease in normal cohort is 1% and 36.4% of thyroid dysfunction cohort. Thyroid enlargement and symptoms of thyroid disease have got significant association with thyroid dysfunction.

In coagulation profile, mean bleeding time in thyroid dysfunction is decreased than normal cohort and mean clotting time in thyroid dysfunction is increased than in the normal cohort. Mean platelet count in both groups are around 2.2 lakhs and within normal limits.

Mean haemoglobin level in both groups are 9 gm%.

Mean duration of AUB in thyroid dysfunction is 7.7 months and in normal cohort is 5.5 months. Majority of AUB population presented to the gynecology OPD in the first episode 83.8% of the cases. Depending on the duration of AUB, regression coefficient curve is used in this study to predict thyroid dysfunction. This test has high sensitivity (90.9%) than specificity (39.4%).

Menorrhagia, symptoms of thyroid disease and thyroid enlargement are the three variables used to predict 93.6% thyroid dysfunction. Menorrhagia alone can predict 11.5% thyroid dysfunction.

SUMMARY

SUMMARY

The study population includes 110 abnormal uterine bleeding patients.

1. The most common age group studied were between 25-35 years is 48.5% in normal cohort and 63.6% in thyroid dysfunction cohort.

2. Multiparous (P_2L_2) were the majority, 54.5% in both groups. Nulliparous 4% in normal cohort and 9.1% in thyroid dysfunction cohort.

3. The most common type of AUB in both groups are menorrhagia. (39.4% V_s 63.6%) Menorrhagia got significant association with thyroid dysfunction.

4. Hypothyroidism presents in 7.27%, subclinical hypothyroidism in 1.18% and hyperthyroidism in 0.92% of the study population.

5. Majority of AUB population attended Gynecology OPD in first episode (81.8%) to seek health care at the earliest.

6. Most common socioeconomic class studied belongs to upper lower class (kuppusamy's scale) which comprises about 43.4% in normal cohort and 63.6% in thyroid dysfunction cohort.

7. Thyroid dysfunction patients 18.1% had association with family history of thyroid disorders.

8. Uterine size and thyroid dysfunction had no significant association in this study (32.3% V_s 36.4%)

9. Obese people are prone for thyroid dysfunction. In this study thyroid dysfunction cohort are in the upper limit of overweight group (26.95%) and normal cohort in normal BMI.

10. Majority of the hypothyroidism patients had proliferative endometrium (62.5%) and minority of patients had secretory endometrium (12.5%)

11. Clinically thyroid enlarged patients (45.5%) and those patients who got symptoms of thyroid disease (36.4%) are vulnerable for thyroid disorders.

12. Bleeding time and clotting time are within normal limits in both the groups.

13. Platelet count in both groups are within normal limits (2.2lakhs).

14. Mean haemoglobin level in both groups was 9 gm%.

15. Even though majority of patients attended healthcare facility very earlier, mean duration of AUB in thyroid dysfunction group is 7.7 months depending on the duration of AUB.

16. Menorrhagia, thyroid enlargement and symptoms of thyroid disease are the three variables together used to predict thyroid dysfunction in 93.6%

CONCLUSION

CONCLUSION

Our study highlights the following facts:

The significant association between abnormal uterine bleeding and thyroid disorder (10%). It brings into focus the increased incidence of hypothyroidism among women with menorrhagia .

It proves beyond doubt that TSH assay can be used in selective screening of women with abnormal uterine bleeding and in prevalence of subclinical hypothyroidism (21.4%) as per AACE guidelines in this study. We are treating only tip of the disease but the submerging part of the disease also needs surveillance at frequent intervals to treat patients at the earliest and prevent morbidities in later life.

ANNEXURES

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PROFORMA

Name Age Sex Unit IP No

Address D.O.A

D.O.P

D.O.D

Chief complaints

H/o presenting illness

Bleeding p/v

Duration

Quantity-scanty/moderate/excessive

Flow last for---------- days

H/o passing clots yes/no

H/o Dysmenorrhoea

Menorrhagia Yes/No

Oligomenorrhoea Yes/No

Amenorrhoea Yes/No

Hypomenorrhoea Yes/No

Polymenorrhoea Yes/No

MENSTRUAL HISTORY:

Attained menarche------- Years

Duration of cycles

Duration of flow

LMP

MARITAL HISTORY:

Married since-------Years

OBSTETRIC HISTORY:

Para Living Abortion

FTNVD /FTLSCS

Sterilization- Yes/No

PAST HISTORY:

Hypertension/diabetes mellitus/tuberculosis/asthma/thyroid disorders

FAMILY HISTORY OF THYROID DISORDER –Yes/No

General Examination

Height weight BMI

Temp Pulse rate BP

Patient

Anaemic pedal edema skin thickening

CVS RS

P/A

Examination of vulva-

Speculum examination -vagina

Cervix

Bimanual pelvic examination

Cervix

Uterus- anteverted/retroverted

Normal size/bulky/small

Soft/firm/hard

Mobile/fixed

Fornices free, Yes/No

Investigation

1.Complete blood count- Haemoglobin

Total count

Differential count

2.platelet count

3.Bleeding time

4.clotting time

5.urine routine

6.blood sugar

7.renal function test

Blood urea/serum creatinine

8.HIV

9.ultrasonogram pelvis

10.thyroid function test

Free t_3-----

Free t_4-----

TSH-------

11.endometrial sampling- histopathological examination

KEY TO MASTER CHART

Type	-	Type of AUB
Dur	-	Duration of AUB
EPI	-	Episodes of AUB
SES	-	Socioeconomic Status
FH	-	Family History
BMI	-	Body Mass Index
HB	-	Haemoglobin
UTS	-	Uterine Size
HPE	-	Histopathological examination of Endometrium
BT	-	Bleeding Time
CT	-	Clotting Time
P	-	Proliferative endometrium
S	-	Secretory endometrium
A	-	Anovulatory endometrium
AT	-	Atrophic endometrium
SGA	-	Stromal Glandular Asynchro nistation
Hyper.s	-	Simple hyperplasia
Hyper-Ad	-	Adenomatous hyperplasia

MASTER CHART

NAME	AGE	PARITY			TYPE	DUR	EPI	SES	F H	BMI	HB	UT S	THYROID	FREE T3	FREE T4	TSH	HPE	THYROID	BT	CT	PLATELET COUNT
		P	L	A																	
JEYA KUMARI	35	2	2	0	M	12	2	IV	N	23.5	9.2	N	N	2.5	1.2	2.6	P	0	68	145	1.6
KALA	40	3	3	0	H	4	1	V	N	24.6	10.2	B	N	2.9	1.6	1.4	SDA	0	125	320	2.2
MAHALAKSHMI	41	2	2	0	M	6	1	V	N	28.2	8.6	B	N	3.17	1.39	1.68	P	0	134	260	3.4
VANITHA	24	1	1	0	O	3	1	IV	N	25.4	9.4	N	N	2.97	1.22	2.18	S	0	142	290	1.6
LAKSHMI PRIYA	26	3	1	1	O	4	1	III	N	26.2	10.4	B	N	2.58	0.91	4.44	P	0	145	520	1.8
MALAR	45	4	3	0	M	6	2	V	N	24.4	8.8	N	N	2.76	1.04	5.112	P	0	175	380	2.5
SHANTHI	45	2	4	0	M	6	2	V	N	26.4	7.6	N	N	2.72	1.38	1.22	P	0	180	410	2.6
LAKSHMI PRIYA	38	2	2	0	M	5	1	IV	N	23.6	9	B	N	2.18	1.14	1.23	AN	0	120	360	3.5
SARADHA	44	2	2	0	M	4	1	V	N	24.2	8.4	N	N	2.61	1.24	0.89	P	0	132	270	1.6
SUDALI	38	3	3	0	M	7	2	V	N	26.2	8.2	B	N	2.78	1.04	1.62	AN	0	140	265	1.8
MAHALAKSHMI	40	2	2	0	O	6	1	V	N	29.2	8.8	N	N	3.17	1.39	1.68	S	0	150	340	1.4
LOGANAYAGI	38	2	2	1	M	9	1	V	N	28.6	7	N	N	2.54	1.06	1.977	IS	0	155	280	2.4
SUMATHY	30	2	2	0	O	6	1	IV	N	24.6	8.2	B	N	2.86	1.02	2.912	S	0	95	310	2.5
ANNAKILI	33	2	2	0	M	8	1	V	N	30.4	8.8	B	Y(HYPO)	1.87	0.7	6.1	P	1	65	540	2.6
SUSEELA	40	2	2	0	A	6	1	IV	N	28.2	8.9	N	N	2.68	1	1.44	P	0	120	400	3.3
SENGANI	44	2	2	0	M	2	2	V	N	24.8	8.4	N	N	3.6	1.1	3.72	hyperp	0	140	410	1.8
PUSHPA	42	2	2	0	O	6	2	V	N	25.6	9.4	B	N	2.4	1.42	2.8	p	0	185	360	1.6
ANNAPOORANI	40	2	2	1	M	9	1	V	N	28.4	8.8	N	N	2.8	1.2	2.6	p	0	90	290	1.8
SATHIYA	37	3	3	0	O	6	1	IV	N	29.4	9	N	N	2.2	1.06	1.46	p	0	100	295	1.2
SAROJA	36	2	2	2	M	5	1	V	N	27.6	9.6	B	N	2.7	1.2	2.6	AN	0	125	370	1.4
LAKSHMI	38	2	2	1	M	2	1	IV	N	26.3	8	B	N	2.1	1.14	1.23	P	0	155	310	2.4
VIJI	25	2	2	0	O	6	2	III	N	25.8	8.6	B	N	3.4	1.2	3.67	S	0	140	340	2.8
NIVEDHA	22	1	1	0	M	4	1	IV	N	26.7	9.4	N	N	2.4	1.2	1.37	P	0	125	560	3.2
LATHA	37	2	2	3	M	6	1	IV	N	29.2	8.2	N	N	2.2	1.09	3.16	P	0	102	420	4.1
MUTHULAKSHMI	27	2	2	1	A	7	1	V	N	24.3	10.6	N	N	2.67	1.16	3.54	SDA	0	95	450	1.8
GOVINDAMMAL	38	3	3	0	A	6	1	IV	Y	27.8	9.6	N	Y(HYPO)	1.6	0.5	6.6	p	0	120	410	1.6
REVATHY	30	0	0	0	O	5	1	IV	N	22	9.8	N	N	2.4	1.2	3.2	S	0	185	320	1.2
JULIET	37	2	2	0	M	24	2	V	N	24.6	8.8	N	N	2.8	1.06	2.2	P	0	126	345	1.4
JEYA KUMARI	28	2	3	0	M	2	1	III	N	20.8	9.2	B	N	2.6	1.08	4	P	0	120	420	2.4
VISALAKSHMI	27	2	0	0	H	8	1	IV	N	26.4	9.4	N	Y(SUB)	2.2	1.06	5.8	AN	1	95	360	2.6
NEULAZHI	34	3	2	0	A	6	1	V	N	24.8	9.6	N	N	4.1	1.42	2	s	0	55	390	3.2
GEETHA	24	0	2	0	O	24	1	III	N	24.2	9.5	N	N	2.6	1.2	4.8	IS	0	135	620	3.1
AMULU	27	2	4	0	H	12	1	IV	N	23.8	9.8	N	N	2.2	1.2	3.4	SDA	0	150	480	2.1
ALAMELU	45	2	2	0	M	2	1	IV	N	22.7	8.6	N	N	2.69	1	1.44	P	0	180	510	1.7

JEENATH	42	4	4	2	M	7	1	V	N	23.6	9.2	B	N	2.7	1.2	3.2	P	0	75	460	2.4
SARATHA	40	3	2	0	A	3	1	IV	N	22.8	8.8	N	N	2.72	1.4	2.9		0	85	470	3.8
KANAGIMANI	40	2	2	0	M	6	2	V	Y	29.4	8.4	B	Y(SUB)	1.7	0.76	9.4	P	1	90	445	1.5
JOTHIBAI	39	3	3	0	M	5	1	IV	N	24.6	9	N	N	2.6	1.4	3.2	AN	0	120	520	1.8
VALLI	45	4	4	1	M	7	1	V	N	25.8	8.6	N	Y(HYPO)	1.2	0.5	7.2	SDA	0	65	460	2.2
KALIAMMAL	37	3	3	0	M	4	1	V	N	27	9.2	N	N	2.6	1.4	3.8	P	0	100	490	1.7
VENNILA	42	3	3	0	O	5	1	IV	N	26.4	9.4	N	N	2.4	1.2	1.8	S	0	75	540	1.6
MALARKODI	45	2	2	2	O	3	1	V	N	26.4	9	B	N	2.6	1.7	3.2	S	0	120	480	3.4
LAKSHMI	44	3	2	0	M	6	1	V	N	22.6	8.2	B	N	2.8	1.6	3	hyperpl	0	140	510	3.2
REVATHY	42	3	3	0	M	7	1	V	N	20.8	9.2	B	N	2.7	1.3	2.8	hyperpl	1	110	460	1.5
INDIRA	24	0	0	0	O	6	1	III	N	26.9	9	N	N	2.2	1	1.4	AN	0	125	470	1.6
BHUVANESHWARI	45	2	2	0	M	4	1	III	N	24.2	9.6	N	N	2.4	1.2	2.4	P	0	140	285	4.1
MEHAR SULTANA	36	3	2	0	O	5	1	V	N	23.6	8.8	B	N	3.1	1.8	4.16	P	0	110	360	2.7
MALIGA	43	4	5	0	M	6	2	IV	N	23.8	7.8	B	N	2.8	1.7	3.2	S	0	95	400	1.6
PUSHPA	40	2	2	2	O	3	1	IV	Y	25.2	8.4	N	N	2.6	1.2	4.2	S	0	85	330	1.4
DHANALAKSHMI	42	4	4	0	P	6	1	V	N	26.2	10.2	N	N	2.8	1.1	1.6	P	0	110	560	2.4
LATHA	32	2	2	0	M	3	1	V	N	24.8	9.8	N	N	2.3	0.9	0.8	P	0	75	420	1.3
DEVIKA	45	4	4	0	M	11	1	V	N	26.3	8	B	N	2.6	1.4	2.45	P	0	150	440	1.4
RENUKA	35	3	3	0	M	2	1	III	N	23.9	9.6	N	N	2.7	1.6	2.8	P	0	75	390	2.5
MADHAVI	35	3	3	0	M	6	1	III	N	25.6	9.2	B	Y(HYPO)	1.6	0.4	6.4	P	0	65	310	2.6
KARPAGAM	34	2	2	0	O	3	1	IV	N	22.2	8.6	B	N	2.9	1.6	2.6	S	0	90	275	2.1
CHINNAPONNU	45	3	3	0	M	4	1	V	N	24	8.4	N	N	2.4	1.2	3.8	hyperpl	0	120	330	1.4
MAHESHWARI	42	0	0	0	O	24	2	IV	N	24.2	9.2	B	Y(HYPER)	9.36	4.4	0.04	s	0	180	290	1.3
USHA RANI	40	3	3	0	M	4	1	III	N	25.6	8.8	N	N	2.4	1.8	3.2	p	0	165	320	1.8
VALLIAMMAL	42	2	2	0	M	6	1	V	N	23.2	9.2	N	N	2.8	1.6	3.6	p	0	65	550	1.6
RAJESHWARI	27	1	1	0	O	4	1	III	N	24.8	9.6	B	N	2.3	0.9	0.06	s	0	140	410	2.1
VICTORIA	34	2	2	1	P	5	1	IV	N	24.6	8.6	N	N	2.8	1.4	1.24	p	0	75	440	2.4
SHANTHI	39	0	0	0	M	7	1	V	N	29.2	9.4	B	N	2.7	1.6	2.4	p	0	120	400	3.1
LAKSHMI	45	2	2	0	O	6	1	IV	N	23.4	11.2	N	N	2.5	0.9	1.84	s	0	85	470	1.7
KANI	42	3	3	1	O	4	1	V	N	25.4	9.6	N	N	2.7	1.8	1.9	an	0	110	295	1.6
JOTHIBAI	39	2	2	0	O	5	1	V	N	22.6	9.2	B	Y(HYPO)	2	0.6	6.2	s	0	95	370	2.4
VIJAYAKUMARI	45	2	2	0	A	3	1	IV	N	23.8	8.8	B	N	3.1	1.9	4.2	atrophi	0	100	510	3.2
JEYALAKSHMI	43	4	3	0	M	6	2	V	Y	24.2	8.6	N	N	2.3	1.2	2.6	P	0	105	540	1.8
SHANTHI	45	2	3	0	M	3	1	IV	N	25.6	9.4	N	N	3.4	1.8	4.6	P	0	90	560	1.5
ANJALI	29	2	2	0	O	5	1	V	N	24.8	10.2	B	N	2.8	1.6	3.8	SDA	0	75	420	1.4
KUPPPU	38	2	2	0	M	6	1	V	N	29.8	8.9	B	Y(HYPO)	1.6	0.3	7.2	P	1	180	450	1.7
SHARMILA	26	1	1	0	A	4	1	III	N	23.4	9.2	B	N	2.6	1.2	2.4	An	0	85	480	2.1
BHAGIYAM	36	3	3	0	M	3	1	IV	N	22.6	9	N	N	2.8	1.6	3.6	P	0	170	270	2.6
JANAKI	32	2	2	0	O	4	1	IV	N	28.4	9.8	B	N	2.4	1.1	2.72	S	0	65	235	2.4

KAMALA	22	1	1	0	O	3	1	V	N	28.6	9.2	N	N	3.1	1.9	5.5	SDA	0	150	310	2.5
AMBIGAI	28	2	2	0	O	5	1	IV	N	26.7	9.4	B	N	2.3	0.9	1.8	S	0	105	250	1.8
SHAHJITHA BEGUM	24	2	2	0	P	4	1	V	N	22.5	8.8	N	N	2.8	1.7	2.6	P	0	140	280	1.6
HEMAVATHY	36	3	3	0	A	5	1	IV	N	22.4	9.6	N	N	2.4	1.01	2.2	p	0	65	510	1.2
NEELA	32	2	2	0	M	3	1	IV	N	24.6	9.2	N	N	2.7	1.12	2.95	P	0	185	370	1.8
UMA MAHESHWAR	26	1	1	0	M	5	1	V	N	23.8	9	B	Y(HYPO)	1.6	0.3	7.2	AN	1	75	400	2.6
PARIMAL	39	3	3	0	A	3	1	IV	N	21.6	10.6	N	N	2.8	1.2	2.86	s	0	145	350	1.5
SAKTHIESWARI	32	2	2	1	O	7	1	IV	N	22.4	9.8	N	N	2.58	1.12	2.6	P	0	95	260	1.6
MARAGADHAM	44	3	3	0	M	5	2	V	N	24.2	8.4	N	N	2.9	1.6	3.2	P	0	145	250	1.7
PALLAVI	22	1	1	0	O	4	1	III	N	23.6	9.8	N	N	2.4	0.92	2.54	S	0	105	512	3.4
KANNAGI	38	2	2	0	O	8	2	IV	N	25.4	9.4	N	N	2.82	1.6	2.94	S	0	135	375	4.1
CHELLAKILI	42	3	3	0	M	6	2	III	N	28.6	8.8	N	N	2.64	1.26	3.2	P	0	125	315	2.9
VANI	36	2	2	0	O	4	1	IV	N	26.8	9	N	N	2.9	1.01	2.7	S	0	115	285	3.4
JAGADEESWAR	28	1	1	0	O	6	1	V	N	24.2	9.4	B	N	2.2	1.16	2.42	S	0	60	375	1.9
GNAMMBAL	40	2	2	2	M	3	1	IV	N	26.4	9.2	N	N	2.3	1.84	2.78	p	0	180	355	1.5
SAKUNTHALA	34	2	2	0	M	5	1	IV	N	26.3	8.8	N	N	2.2	0.9	2.92	SDA	0	70	245	2.4
VANITHA	36	2	2	0	M	4	1	V	N	24.6	9	N	N	2.6	1.3	2.64	P	0	170	320	2.6
NIRMALA	34	2	2	0	A	5	1	IV	Y	28.4	9.4	N	N	3.2	1.84	3.26	s	0	80	520	3.5
KALAISELVI	37	3	3	0	O	6	1	V	N	29.4	8.4	N	N	2.5	1.21	0.84	S	1	160	290	2.8
KARPAGAM	40	2	2	0	O	12	1	IV	N	24.6	8.9	B	N	2.74	1.48	3	S	0	90	480	4.1
JANAKI	36	2	2	0	M	6	1	V	N	25.3	9.2	N	N	2.68	1.6	2.84	P	0	150	520	2.3
SARASWATHY	29	2	2	0	M	3	1	IV	N	25.8	9.8	N	N	2.4	1.2	1.46	AN	0	100	340	1.8
RENGANAYAGI	38	2	2	0	M	4	2	V	N	28.6	8.6	B	Y(HYPO)	1.2	0.3	6.42	P	0	140	350	4.1
ESTHER	32	2	3	0	M	6	1	V	N	28.6	7.9	N	N	2.72	1.04	2.38	P	0	110	410	2.8
RUKMANI	36	3	2	1	M	5	1	V	N	24.8	8.8	N	N	2.46	1.28	2.54	SDA	0	130	510	1.5
KALAVATHY	28	2	2	0	O	6	1	III	N	26.8	9.4	N	N	2.72	1.36	2.82	S	0	110	240	2.4
KALPANA	32	2	22	1	A	4	1	IV	N	24.2	8.4	N	N	2.46	1.02	2.48	P	0	120	245	1.9
VIJAYA	35	3	3	0	M	6	1	V	N	28.4	8.9	B	N	2.9	1.67	2.8	P	0	85	310	2.6
SEETHA	29	2	2	0	M	3	1	IV	N	28.6	9.6	N	N	2.48	1.16	2.72	P	0	65	260	3.1
RADHA	34	2	2	0	M	7	2	V	N	26.4	8.2	B	N	2.96	1.82	3.2	AN	0	125	280	1.8
VELLAMMAL	37	2	2	0	M	6	1	IV	N	23.2	8.6	N	N	2.84	1.62	2.78	P	0	135	510	2.3
SHENBAGAM	30	1	1	0	A	5	1	IV	N	22.6	9.2	N	N	2.72	1.56	2.96	AN	0	175	360	1.9
CHINNAPONNU	40	4	4	0	M	6	2	V	N	25.4	8.2	B	N	2.98	1.64	3.4	P	0	65	270	2.8
REKHA	28	2	2	0	M	4	1	III	N	27.6	9.4	N	N	2.46	1.04	2.64	P	0	85	250	2.5
MAHESWARI	39	2	2	0	M	6	1	IV	N	29.4	9	B	N	2.38	1.06	1.84	Hyperp	0	90	160	1.6
PRIYA	27	1	1	0	M	4	1	IV	N	28.4	8.8	N	N	2.42	0.96	1.62	P	0	120	150	2.4
VALLI	42	3	3	0	M	6	2	V	N	26.6	8.2	N	N	3.02	1.54	2.84	hyperpl	0	180	180	2.6

ETHICAL COMMITTEE
GOVT. KILPAUK MEDICAL COLLEGE, KILPAUK,
CHENNAI- 10.
Venue: PANAGAL HALL, KMC
Dt: 01.02.2011

CHAIRPERSON
Prof. Dr.V.KANAGASABAI, MD.,
Dean
Govt. Kilpauk Medical College, Chennai-10

Sub: Ethical Committee project work - approved – regarding.
Ref: Lr.No.3944/Audit/E1/09 Dt. 30.11.2010

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With above reference, the Institutional Ethical committee meeting for the following students was conducted at our Institution on 01.02.2011.

S.NO.	Name	Topic
1.	Dr.Navin Kumar, MS(Ortho), PG., Govt. Royapettah Hospital, Chennai.	1.To Identify a Safe Zone to approach proximal Humerus 2.To study Anatomical relations of Axillary nerve, its course & its Variations
2.	Dr.T.Satheesh Kumar, D.Ortho., PG., Govt. Royapettah Hospital, Chennai	Heriditary Multiple Exostosis
3.	Dr.J. Jeya Shambavi, MD(Pathology), PG., Kilpauk Medical College, Chennai-10	Clinicopathological Histomorphological and Immunohistochemical Study of Neuroendocrine Tumors of GIT
4.	Dr.L. R. Saranya. MD., (Paed.)PG., Kilpauk Medical College, Chi-10	Cord Blood Zinc Level in Term-Small for Gestational Age Neonates
5.	Dr.A.Satheesh Kumar, MS(ENT), PG., Kilpauk Medical College, Chennai	Study on Cases of Chronic Suppurative Otitis Media in Tubo Tympanic Type Due to Sinusitis as Focal Sepsis
6.	Dr.R.Parthiban,(Msc.,Physiology), PG., Kilpauk Medical College,Ch-10	Prevalence of Cardiac Dysautonomia in Type I Diabetes mellitus
7.	B. Manikandan, (Msc., Physiology), PG., Kilpauk Medical College, Chennai-10	A Comparative Study of Left Ventricular Structure and Function in Obese and Non Obese Subjects
8.	G. Selvakumar, (MSc., Physiology), PG., Kilpauk Medical College, Chennai-10	A Study of the Intraocular Pressure In Patients with Diabetic Normotensive, Diabetic Hypertensive and Normal Subjects

9.	R. Ragulji, (Msc.,Physiology), PG., Kilpauk Medical College, Ch-10	A Study of Pulmonary function in insulin dependent diabetes mellitus
10.	V.M. Jenila Vemy, (Msc..Physiology), PG..Kilpauk Medical College, Chennai-10	Cardiovascular Autonomic Dysfunction in Chronic Kidney Disease
11.	Dr.G. Lakshmi, MD(O&G), PG., Kilpauk Medical College, Ch-10	A Study of Association of Thyroid Disorders in Abnormal Uterine Bleeding
12.	Dr.R. Harini, MD(O&G), PG., Kilpauk Medical College, Chennai	Single Dose Antibacterial treatment for Asymptomatic Bacteriuria in Pregnancy
13.	Dr.E.Geetha, MD(O&G), PG., Kilpauk Medical College, Chennai	A Study of the incidence course of Pregnancy and Pregnancy outcome in Obstetric Cholestasis and to evaluate the efficiency of UDCA in relieving the Symptoms and Improving the Perinatal outcome in these Patients
14.	Dr.S. Nithya, MD(O&G), PG., Kilpauk Medical College, Chennai	Prospective Study of Prevalence of diabetes Mellitus, Thyroid Dysfunction and Hyperprolactinemia in Recurrent Pregnancy loss
15.	Dr.Mohideen Fathima, MD(O&G), PG., Kilpauk Medical College, Chennai	A Study of evaluation of multi system changes in Gestational hypertension / severe pre-eclamptic/eclampasia patients
16.	Dr M.Padma Priya, MD(O&G), PG., Kilpauk Medical College, Chennai	Dyslipidemia – as a Predictor of PIH
17.	Mrs.G. Savitha, (Msc.,Medical Bio Chemistry), Kilpauk Medical College, Chennai-10	Association of subclinical hypothyroidism in metabolic syndrome patients
18.	Dr.K. Bharadhwaj, MD(G.M.), PG., Kilpauk Medical College, Ch-10	A Study on Peripheral Vascular Disease in Type 2 Diabetes Mellitus
19.	Dr.B.Priya, MD(G.M.), PG	Study of Serum Bilirubin Concentration in Established Coronary Artery Disease
20.	Dr.R.Hema, MD(G.M.), PG.,	Study of Troponin I level in Supraventricular Tachycardia in Non Cad Patients
21.	Dr.P.Manoj Kumar, MD(G.M.), PG., Kilpauk Medical College, Ch-10	A Study on Pulmonary Functions in Type 2 Diabetes Mellitus
22.	Dr.M.Dhanasekar, MD(G.M.), PG.,	Prognostic Risk Stratification of Acute Coronary Syndrome – Role of Highly Sencitive – Reactive Protien
23.	Dr.N. Karthik, MD(G.M.), PG., Kilpauk Medical College, Chennai-10	A Study of Comparison of QT Dispersion in Acute Myocardial Infraction Between Early Reperfusion and Late Reperfusion Therapy

24.	Dr.H. Anuradha, MD(G.M.), PG., Kilpauk Medical College, Ch-10	A Study of Stress Hyperglycemia in Moderate Degree Burns
25	Dr. V. Nandakumar, MD(G.M.), PG.,	A Prospective Study of Clinical Profile of Emphysematous Pyelonephritis in Type Two Diabetes Mellitus
26.	Dr.S.Sasikumar, MS(G.S.), PG., Govt. Royapettah Hospital, Chennai	A Study of Unusual Presentations of Appendicitis.
27.	Dr.S.R.Padmanabhan, MS(GS), PG., Govt. Royapettah Hospital, Chennai	A Comparative Study Between Autologous Platelet Rich Plasma and Saline Dressing for Diabetic Ulcer
28.	Dr.C.Rose, Scientist-G and Head, Biotechnology, Central Leather Institute, Chennai.	Wound healing efficacy of the chitosan –containing collagenous biomaterial. on burn wound
29.	E.K. Lavanya,B.Tech, Biotechnology, PG., Prathyusha Institute of Technology and Management, Tiruvallur.	Isolation and Characterization of Bacterial Pathogens from Eye Infection

We are glad to inform you that at the Ethical Committee meeting, the documents were discussed and the above short term projects are Ethically approved.

11/2/11

CHAIRPERSON
DEAN
Govt. Kilpauk Medical College,
Chennai-10.

To: The Individuals

சுய ஒப்புதல் படிவம்

ஆய்வு செய்யப்படும் தலைப்பு :

மகளிர் மற்றும் மகப்பேறு மருத்துவத்துறை :

கீழப்பாக்கம் மருத்துவக்கல்லூரி :

பங்கு பெறுபவரின் பெயர் :

பங்கு பெருபவரின் வயது :

பங்கு பெருபவரின் எண் :

பங்கு பெறுபவர் இதனை (√) குறிக்கவும்.

- ❖ மேலே குறிப்பிட்டுள்ள மருத்துவ ஆய்வின் விவரங்கள் எனக்கு விளக்கப்பட்டது. என்னுடைய சந்தேகங்களை கேட்கவும் அதற்கான தகுந்த விளக்கற்களை கேட்க வாய்ப்பளிக்கப்பட்டடுள்ளது என அறிந்து கொண்டேன். ☐
- ❖ நான் இவ்வாய்வில் தன்னிச்சையாகத் தான் பங்கேற்கிறேன்.எந்த காரணத்தினாலோ எந்த சட்டசிக்களுக்கும் உட்படாமல் நான் இவ்வாய்வில் இருந்து விலகிக் கொள்ளலாம் என்றும் அறிந்து கொண்டேன்.ஷ ☐
- ❖ இந்த ஆய்வு சம்பந்தமாகவோ அதை சார்ந்து மேலும் ஆய்வு மேற்கொள்ளும் போது இந்த ஆய்வில் பங்கு பெறும் மருத்துவர் என்னுடைய மருத்துவ அறிக்கைகளை பார்ப்பதற்கு என் அனுமதி தேவையில்லை என அறிந்து கொள்கிறோன். ☐
- ❖ இந்த ஆய்வின் மூலம் கிடைக்கும் தகவலையோ முடிவையோ பயன்படுத்திக் கொள்ள மறுக்கமாட்டோன். ☐
- ❖ இந்த ஆய்வில் பங்கு கொள்ள ஒப்புக் கொள்கிறேன். இந்த ஆய்வை மேற்கொள்ளும் மருத்துவ அணிக்கு உன்மையுடன் இருப்பேன் என்றும் உறுதியளிக்கிறேன். ☐
- ❖ இந்த ஆய்வில் ஒருமுறை 5 மி இரத்த பரிசோதனைக்காக எடுத்தக் கொள்ளப்படும் என்பதை அறிவேன்.

பங்கேற்பவரின் கையொப்பம்_____

இடம்_____ தேதி_____

பங்கேற்பவரின் பெயர் மற்றும் விலாசம்
சாட்சியாளரின் கையொப்பம்

இடம்_____ தேதி_____

சாட்சியாளரின் பெயர் மற்றும் விலாசம்

ஆய்வாளரின் கையொப்பம்

இடம்_____ தேதி_____

ஆய்வாளரின் பெயர்_____